

**Final
Site-Specific Field Sampling Plan,
Site-Specific Safety and Health Plan, and Site-Specific
Unexploded Ordnance Safety Plan Attachments,
Former Personnel and Equipment Decontamination Station-
Pelham Range, Parcel 206(7)**

**Fort McClellan
Calhoun County, Alabama**

**Task Order CK05
Contract No. DACA21-96-D-0018
IT Project No. 774645**

June 2001

**Final
Site-Specific Field Sampling Plan Attachment
Former Personnel and Equipment Decontamination Station-
Pelham Range, Parcel 206(7)
Fort McClellan
Calhoun County, Alabama**

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**Task Order CK05
Contract No. DACA21-96-D-0018
IT Project No. 774645**

June 2001

Revision 1

Table of Contents

	Page
List of Tables	iii
List of Figures	iii
List of Acronyms	iv
Executive Summary	ES-1
1.0 Project Description	1-1
1.1 Introduction	1-1
1.2 Site Description	1-1
1.3 Scope of Work	1-3
2.0 Summary of Existing Environmental Studies	2-1
3.0 Site-Specific Data Quality Objectives	3-1
3.1 Overview	3-1
3.2 Data Users and Available Data	3-1
3.3 Data Types and Quality	3-2
3.4 Precision, Accuracy, and Completeness	3-2
4.0 Field Activities	4-1
4.1 UXO Survey Requirements and Utility Clearances	4-1
4.1.1 Surface UXO Survey	4-1
4.1.2 Downhole UXO Survey	4-1
4.1.3 Utility Clearances	4-1
4.2 Environmental Sampling	4-2
4.2.1 Surface Soil Sampling	4-2
4.2.1.1 Sample Locations and Rationale	4-2
4.2.1.2 Sample Collection	4-2
4.2.2 Subsurface Soil Sampling	4-3
4.2.2.1 Sample Locations and Rationale	4-3
4.2.2.2 Sample Collection	4-3
4.2.3 Surface Water Sampling	4-4
4.2.3.1 Sample Locations and Rationale	4-4
4.2.3.2 Sample Collection	4-4

Table of Contents (Continued)

	Page
4.2.4 Sediment Sampling.....	4-5
4.2.4.1 Sample Locations and Rationale	4-5
4.2.4.2 Sample Collection	4-6
4.3 Decontamination Requirements	4-7
4.4 Surveying of Sample Locations.....	4-7
4.5 Analytical Program.....	4-8
4.6 Sample Preservation, Packaging, and Shipping	4-8
4.7 Investigation-Derived Waste Management	4-9
4.8 Site-Specific Safety and Health.....	4-9
5.0 Project Schedule.....	5-1
6.0 References	6-1
Attachment 1 – List of Abbreviations and Acronyms	

List of Tables

Number	Title	Follows Page
3-1	Summary of Data Quality Objectives	3-1
4-1	Sampling Locations and Rationale	4-2
4-2	Surface Soil and Subsurface Soil Sample Designations and QA/QC Sample Quantities	4-2
4-3	Surface Water and Sediment Sample Designations and QA/QC Sample Quantities	4-4
4-4	Analytical Samples	4-8

List of Figures

Number	Title	Follows Page
1-1	Site Location Map, Former Personnel and Equipment Decontamination Station, Parcel 206(7)	1-1
1-2	Site Map, Former Personnel and Equipment Decontamination Station, Parcel 206(7)	1-2
4-1	Proposed Sample Location Map, Former Personnel and Equipment Decontamination Station, Parcel 206(7)	4-2

List of Acronyms

See Attachment 1, List of Abbreviations and Acronyms.

Executive Summary

In accordance with Contract Number DACA21-96-D-0018, Delivery Order CK05, IT Corporation (IT) will conduct site investigation activities at the Former Personnel and Equipment Decontamination Station, Parcel 206(7), at Fort McClellan, Calhoun County, Alabama, to determine the presence or absence of potential site-specific chemicals. The purpose of this site-specific field sampling plan is to provide technical guidance for sampling activities at these parcels.

The Former Personnel and Equipment Decontamination Station, Parcel 206(7), is located on the east side of the road that extends south from Gate 6 in Training Area 4B, north central Pelham Range. The decontamination station was reportedly used during the 1950s and 1960s as a decontamination area for outer garments and equipment potentially contaminated by mustard, distilled mustard, and lewisite. The equipment and outer garments were decontaminated using supertropical bleach (STB), decontamination agent (noncorrosive) (DANC), and/or decontamination solution number 2 (DS2).

The parcel area is approximately three acres in size. Currently, the status of the area allows unrestricted access. A small, unnamed pond is located to the north of the decontamination station. Because of the potential that unauthorized disposal of materials into the pond has occurred, and because training in the use of floating smoke pots reportedly occurred at this location, the parcel boundary was extended to the north to include the pond area. Potential contaminant sources at the site include STB, decontamination agents (DANC and DS2), lewisite, and chemical warfare material (mustard and distilled mustard).

To meet the objectives of the site investigation, IT will collect three surface soil samples, three subsurface soil samples, five surface water samples, and three sediment samples at the Former Personnel and Equipment Decontamination Station, Parcel 206(7). Chemical analyses of the samples collected during the field program will include volatile organic compounds, semivolatile organic compounds, target analyte list metals, nitroexplosives, and chemical warfare material breakdown products. Results from these analyses will be compared with site-specific screening levels developed in the IT Corporation July 2000, *Final Human Health and Ecological Screening Values and PAH Background Summary Report*, and regulatory agency guidelines.

This site-specific field sampling plan attachment to the installation-wide sampling and analysis plan (SAP) for the Former Personnel and Equipment Decontamination Station, Parcel 206(7),

will be used in conjunction with the site-specific safety and health plan, site-specific unexploded ordnance safety plan, the installation-wide work plan, and the SAP. The SAP includes the installation-wide safety and health plan, waste management plan, ordnance and explosives management plan, and quality assurance plan. Site-specific hazard analyses are included in the site-specific safety and health plan and site-specific unexploded ordnance safety plan.

1.0 Project Description

1.1 Introduction

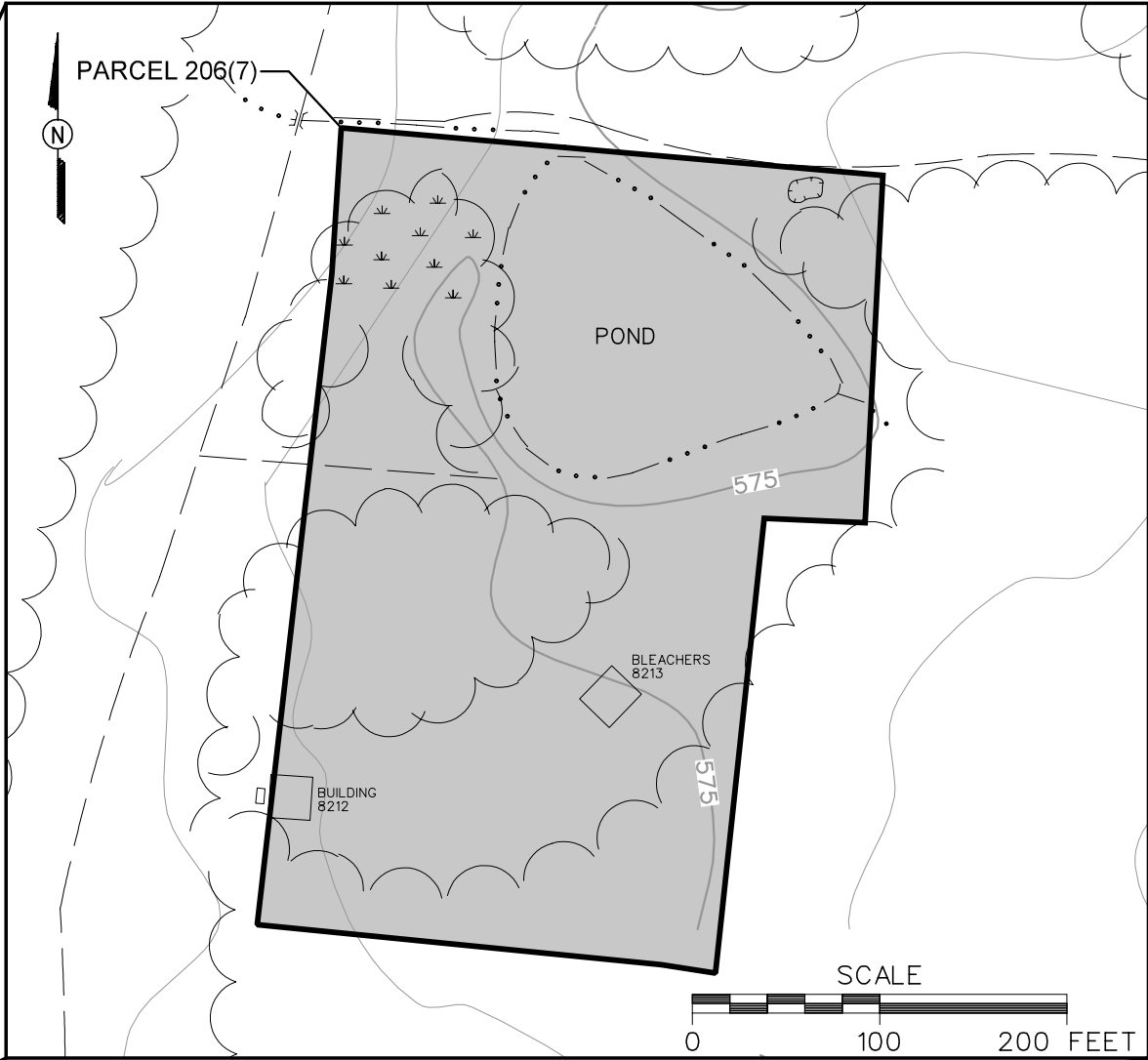
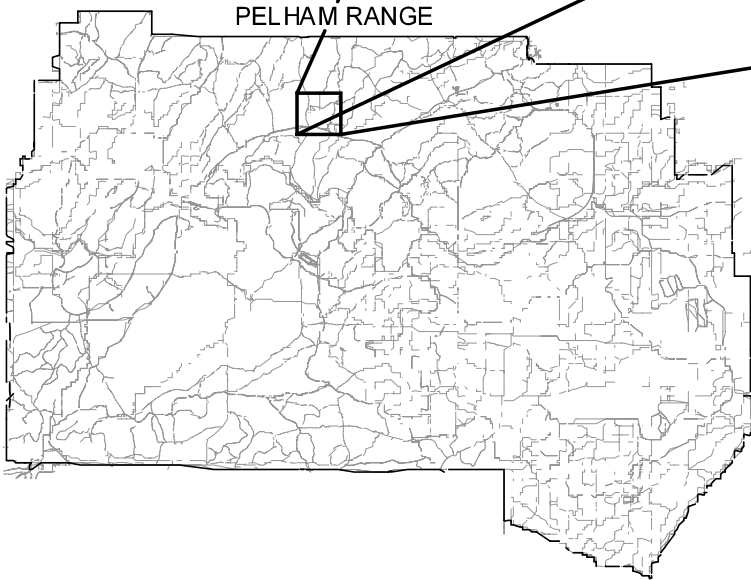
The U.S. Army is conducting studies of the environmental impact of suspected contaminants at Fort McClellan (FTMC) in Calhoun County, Alabama, under the management of the U.S. Army Corps of Engineers (USACE)-Mobile District. The USACE has contracted IT Corporation (IT) to provide environmental services for the site investigation (SI) of the Former Personnel and Equipment Decontamination Station - Pelham Range, Parcel 206(7), under Delivery Order CK05, Contract Number DACA21-96-D-0018.

This site-specific field sampling plan (SFSP) attachment to the installation-wide sampling and analysis plan (SAP) (IT, 2000a) for FTMC has been prepared to provide technical guidance for sample collection and analysis at the Former Personnel and Equipment Decontamination Station, Parcel 206(7). This SFSP will be used in conjunction with the site-specific safety and health plan (SSHP) and the site-specific unexploded ordnance (UXO) safety plan developed for the Former Personnel and Equipment Decontamination Station, the installation-wide work plan (WP) (IT, 1998), and the SAP. The SAP includes the installation-wide safety and health plan, waste management plan, ordnance and explosives management plan, and quality assurance plan (QAP). Site-specific hazard analyses are included in the SSHP and site-specific UXO safety plan.

1.2 Site Description

The Former Personnel and Equipment Decontamination Station, Parcel 206(7), is located on the east side of the road that extends south from Gate 6 in Training Area 4B, at north central Pelham Range (Figure 1-1). The decontamination station was reportedly used during the 1950s and 1960s as a decontamination area for outer garments and equipment potentially contaminated by mustard (H), distilled mustard (HD), and lewisite (L). The equipment and outer garments were decontaminated using supertropical bleach (STB), decontamination agent (noncorrosive) (DANC), and/or decontamination solution number 2 (DS2) (Environmental Science and Engineering, Inc. [ESE], 1998).

An individual interviewed during the environmental baseline survey (EBS) reported that the Former Personnel and Equipment Decontamination Station, Parcel 206(7), was a secondary decontamination station, stating that soap and water only were used. The individual also reported that outer garments and equipment were decontaminated at an area near Rideout Hall



LEGEND

- UNIMPROVED ROADS
- PAVED ROADS
- BUILDING
- TOPOGRAPHIC CONTOUR (CONTOUR INTERVAL - 5 FOOT)
- TREES / TREELINE
- MARSH / WETLANDS
- PARCEL BOUNDARY
- CULVERT WITH HEADWALL
- SURFACE DRAINAGE / CREEK
- DEPRESSION

FIGURE 1-1
SITE LOCATION MAP
FORMER PERSONNEL AND EQUIPMENT
DECONTAMINATION STATION
PARCEL 206(7)

U. S. ARMY CORPS OF ENGINEERS
MOBILE DISTRICT
FORT McCLELLAN
CALHOUN COUNTY, ALABAMA
Contract No. DACA21-96-D-0018

prior to moving personnel and equipment to the Former Personnel and Equipment Decontamination Station, Parcel 206(7). No interview notes provide information to indicate the use of STB, DANC, and/or DS2 at this site. During the interview, the only agent referred to in conjunction with this site was lewisite (U.S. Army Center for Health Promotion and Preventative Medicine [CHPPM], 1999).

The parcel is approximately three acres in size and allows unrestricted access (Figure 1-2). A small, unnamed pond is located in the northern half of the Former Personnel and Equipment Decontamination, Parcel 206(7). The pond is approximately 160 feet wide from east to west and 190 feet long from south to north, approximately one-half acre total. The depth is approximately 5 feet. Weathered-erosion features allow surface water to drain into the pond at its southeasternmost point and out of the pond at its northernmost point. Smoke pots were floated on the pond during training exercises, and some unburned smoke pots were thrown into the pond (CHPPM, 1999).

Because of the potential that unauthorized disposal of materials into the pond has occurred, and because training in the use of floating smoke pots reportedly occurred at this location, the pond was included in the parcel during the EBS (ESE, 1998).

The soils at the Former Personnel and Equipment Decontamination Station, Parcel 206(7), consist of the Rarden gravelly loam, shallow, 6 to 10 percent slopes, eroded (RaC2). The Rarden Series consists of eroded, moderately well-drained, strongly acidic to very strongly acidic soils. The soils generally occur on uplands having slopes of 2 to 10 percent, and in large areas on wide shale ridges (U.S. Department of Agriculture [USDA], 1961).

The soil has a thin, gravelly loam or silt loam surface soil and a mottled, heavy, plastic, silty clay or clay subsoil. The surface soil ranges in color from brown and dark brown to yellowish brown. The subsoil ranges from yellowish red to strong brown in color. On and in the soil is sandstone, quartz, or chert gravel, commonly up to 3 inches in diameter. These soils have strong structure, but they are slowly permeable to roots and water. They have a low capacity for available moisture. Runoff and infiltration are medium. Shale or bedrock is typically at depths ranging from 1 to 4 feet (USDA, 1961).



- LEGEND**
- UNIMPROVED ROADS
 - PAVED ROADS
 - BUILDING
 - 575 TOPOGRAPHIC CONTOUR (CONTOUR INTERVAL - 5 FOOT)
 - TREES / TREELINE
 - Marsh / Wetlands
 - Parcel Boundary
 - CULVERT WITH HEADWALL
 - SURFACE DRAINAGE / CREEK
 - DEPRESSION

FIGURE 1-2
SITE MAP
FORMER PERSONNEL AND EQUIPMENT
DECONTAMINATION STATION
PARCEL 206(7)

U. S. ARMY CORPS OF ENGINEERS
MOBILE DISTRICT
FORT McCLELLAN
CALHOUN COUNTY, ALABAMA
Contract No. DACA21-96-D-0018



1.3 Scope of Work

The scope of work for activities associated with the SI at the Former Personnel and Equipment Decontamination Station, Parcel 206(7), as specified by the statement of work (USACE, 2000), includes the following tasks:

- Develop the SFSP attachment.
- Develop the SSHP attachment.
- Develop the site-specific UXO safety plan attachment.
- Conduct a surface and near-surface UXO survey over all areas to be included in this sampling effort.
- Provide downhole UXO support for all intrusive drilling to determine buried downhole hazards.
- Collect three surface soil samples, three subsurface soil samples, five surface water samples, and three sediment samples to determine whether potential site-specific chemicals (PSSC) are present at the Former Personnel and Equipment Decontamination Station, Parcel 206(7), and to provide data useful for supporting any future planned corrective measures and closure activities.
- Analyze samples for the parameters listed in Section 4.5.

Pelham Range is an active range currently used by the Alabama National Guard and the Anniston Army Depot for military training and testing. Therefore, UXO surface sweeps and downhole surveys of soil borings will be required to support field activities at this site. The surface sweeps and downhole surveys will be conducted to identify anomalies for the purposes of UXO avoidance. The site-specific UXO safety plan attachment addresses the manner in which the avoidance will be conducted.

Confirmation of contamination at the Former Personnel and Equipment Decontamination Station, Parcel 206(7), will be based on the comparison of detected chemicals of potential concern to site-specific screening levels developed in the *Final Human Health and Ecological Screening Values and PAH background Summary Report* (IT, 2000b).

After completion of the field activities and sample analyses, draft and final SI summary reports will be prepared to evaluate the absence or presence of PSSCs at the site and to recommend further actions, if appropriate. The SI summary report will be prepared in accordance with

current U.S. Environmental Protection Agency (EPA), Region IV, and Alabama Department of Environmental Management (ADEM) guidelines.

2.0 Summary of Existing Environmental Studies

An environmental baseline survey was conducted by ESE to document current environmental conditions of all FTMC property (ESE, 1998). The study was to identify sites that, based on available information, have no history of contamination and comply with U.S. Department of Defense (DOD) guidance for fast-track cleanup at closing installations. The environmental baseline survey also provides a baseline picture of FTMC properties by identifying and categorizing the properties by seven criteria.

1. Areas where no storage, release, or disposal of hazardous substance or petroleum products has occurred (including no migration of these substances from adjacent areas)
2. Areas where only release or disposal of petroleum products has occurred
3. Areas where release, disposal, and/or migration of hazardous substance has occurred, but at concentrations that do not require a removal or remedial response
4. Areas where release, disposal, and/or migration of hazardous substance has occurred, and all removal or remedial actions to protect human health and the environment have been taken
5. Areas where release, disposal, and/or migration of hazardous substance has occurred, and removal or remedial actions are underway, but all required remedial actions have not yet been taken
6. Areas where release, disposal, and/or migration of hazardous substance has occurred, but required actions have not yet been implemented
7. Areas that are not evaluated or require further evaluation.

The EBS was conducted in accordance with the Community Environmental Response Facilitation Act (CERFA) (CERFA-Public Law 102-426) protocols and DOD policy regarding contamination assessment. Record searches and reviews were performed on all reasonably available documents from FTMC, ADEM, EPA Region IV, and Calhoun County, as well as a database search of Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)-regulated substances, petroleum products, and Resource Conservation and Recovery Act-regulated facilities. Available historical maps and aerial photographs were reviewed to document historical land uses. Personal and telephone interviews of past and present FTMC

employees and military personnel were conducted. In addition, visual site inspections were conducted to verify conditions of specific property parcels.

The Former Personnel and Equipment Decontamination Station, Parcel 206(7), was identified as a CERFA Category 7 site. CERFA Category 7 sites are areas that lack adequate documentation and, therefore, require additional evaluation to determine the environmental condition of the parcel.

3.0 Site-Specific Data Quality Objectives

3.1 Overview

The data quality objective (DQO) process is followed to establish data requirements. This process ensures that the proper quantity and quality of data are generated to support the decision-making process associated with the action selection for the Former Personnel and Equipment Decontamination Station, Parcel 206(7). This section incorporates the components of the DQO process described in the publication EPA 540-R-93-071 *Data Quality Objectives Process for Superfund* (EPA, 1993). The DQO process as applied to the Former Personnel and Equipment Decontamination Station, Parcel 206(7), is described in more detail in Section 4.3 of the WP. Table 3-1 provides a summary of the factors used to determine the appropriate quantity of samples and the procedures necessary to meet the objectives of the SI and establish a basis for future action at this site.

The samples will be analyzed using EPA SW-846 methods, including Update III Methods where applicable, as presented in Chapter 4.0 in this SFSP and Table 6-1 in the installation-wide quality assurance plan (QAP) (IT, 2000a). Data will be reported and evaluated in accordance with Corps of Engineers South Atlantic Savannah (CESAS) Level B criteria (USACE, 1994) and the stipulated requirements for the generation of definitive data (Section 3.1.2 of the QAP). Chemical analytical data will be reported via hard-copy data packages by the laboratory using Contract Laboratory Program-like forms, along with electronic copies. These packages will be validated in accordance with EPA National Functional Guidelines Level III criteria.

3.2 Data Users and Available Data

The data users for the data and information generated during field activities are primarily EPA, USACE, ADEM, FTMC, and the USACE-supporting contractors. This SFSP, along with the necessary companion documents, has been designed to provide the regulatory agencies with sufficient detail to reach a determination as to the adequacy of the scope of work. The program has also been designed to provide the level of defensible data and information required to confirm or rule out the existence of residual chemical contamination in site media and which will be reported in draft and final SI reports at the completion of field activities and sample analyses.

Table 3-1

**Summary of Data Quality Objectives
Site Investigation
Former Personnel and Equipment Decontamination Station, Parcel 206(7)
Site Investigation
Fort McClellan, Calhoun County, Alabama**

Users	Available Data	Media of Concern	Data Uses and Objectives	Data Types	Analytical Level	Data Quantity
EPA, ADEM USACE, DOD FTMC, IT Corporation other contractors, and possible future land users	None	<u>Surface soil</u>	I to confirm the presence or absence of contamination in the site media	<u>Surface soil</u> TCL VOCs, TCL SVOCs, TAL Metals, Nitroexplosives, and CWM BD Products	Definitive data in CESAS Level B data packages	3 direct-push soil samples + QC
		<u>Subsurface Soil</u>				
		<u>Surface water</u>	Definitive quality data for future decision- making	<u>Subsurface Soils</u> TCL, VOCs, TCL SVOCs, TAL Metals, Nitroexplosives, and CWM BD Products	Definitive data in CESAS Level B data packages	3 direct-push soil samples + QC
		<u>Sediment</u>		<u>Surface Water</u> TCL VOCs, TCL SVOCs, TAL Metals Nitroexplosives, and CWM BD Products	Definitive data in CESAS Level B data packages	5 surface water samples + QC
				<u>Sediment</u> TCL VOCs, TCL SVOCs, TAL Metals, Nitroexplosives, CWM BD Products, Total Organic Carbon, and Grain Size	Definitive data in CESAS Level B data packages	3 sediment samples + QC

ADEM - Alabama Department of Environmental Management.
BD - Breakdown.
CESAS - Corps of Engineers South Atlantic Savannah.
CWM - Chemical warfare material
DOD - U.S. Department of Defense.
EPA - U.S. Environmental Protection Agency.
FTMC - Fort McClellan.

QC - Quality control.
SI - Site investigation.
SVOC - Semivolatile organic compound.
TAL - Target analyte list.
TCL - Target compound list.
USACE - U.S. Army Corps of Engineers.
VOC - Volatile organic compound.

3.3 Data Types and Quality

Surface soil, subsurface soil, surface water, and sediment samples will be collected and analyzed to meet the objectives of the SI at the Former Personnel and Equipment Decontamination Station, Parcel 206(7) (Table 3-1). Quality assurance/quality control (QA/QC) samples will be collected for all sample types as described in Chapter 4.0 of this SFSP. Samples will be analyzed by EPA-approved SW-846 Methods Update III, where available; comply with EPA definitive data requirements; and be reported using hard-copy data packages. In addition to meeting the quality needs of this SI, data analyzed at this level of quality are appropriate for all phases of site characterization, remedial investigation, and risk assessment.

3.4 Precision, Accuracy, and Completeness

Laboratory requirements of precision, accuracy, and completeness for this SI are provided in Section 9.0 of the QAP.

4.0 Field Activities

4.1 UXO Survey Requirements and Utility Clearances

Pelham Range is an active range used by both the Alabama National Guard and the Anniston Army Depot for training and weapons testing. Therefore, IT will conduct UXO avoidance activities, including surface sweeps and downhole surveys of soil borings prior to intrusive sampling. The site-specific UXO safety plan attachment provides technical guidance for ordnance and explosives avoidance for sample collection activities at the Former Personnel and Equipment Decontamination Station, Parcel 206(7). The site-specific UXO safety plan attachment has been written in conjunction with Appendix E of the SAP (IT, 2000a).

4.1.1 Surface UXO Survey

A UXO sweep will be conducted over areas that will be included in the sampling and surveying activities to identify UXO on or near the surface that may present a hazard to on-site workers during field activities. Hand-held, low-sensitivity magnetometers will be used to locate surface and shallow-buried metal objects. UXO located on the surface will be identified and conspicuously marked for each avoidance. Subsurface metallic anomalies will not be disturbed but will be marked for easy avoidance. UXO personnel requirements, procedures, and detailed descriptions of the geophysical equipment to be used are provided in Chapter 4.0 and Appendix E of the approved SAP (IT, 2000a). Additionally, the site-specific UXO safety plan attachment has been written in conjunction with Appendix E, Installation-Wide Ordnance and Explosives Management Plan for Support of Hazardous, Toxic, Radiological Waste Activities and Construction Activities (IT, 2000a) as a necessary measure for UXO avoidance.

4.1.2 Downhole UXO Survey

During the soil boring and downhole sampling, downhole UXO surveys will be performed to determine if buried metallic objects are present. UXO monitoring, as described in Chapter 4.0 of the SAP (IT, 2000a), will continue until undisturbed soils are encountered or the borehole has been advanced to 12 feet below ground surface (bgs), whichever is reached first.

4.1.3 Utility Clearances

After the UXO surface survey has cleared the area to be sampled and prior to performing any intrusive sampling, a utility clearance will be performed at locations where soil and groundwater samples will be collected, using the procedure outlined in Section 4.2.6 of the SAP (IT, 2000a).

The site manager will mark the proposed locations with stakes, coordinate with the local utility companies to clear the proposed locations for utilities, and obtain digging permits. Once the locations are approved (for both UXO and utility avoidance) for intrusive sampling, the stakes will be labeled as cleared.

4.2 Environmental Sampling

The environmental sampling program at the Former Personnel and Equipment Decontamination Station, Parcel 206(7), includes the collection of surface soil, subsurface soil, surface water, and sediment samples for chemical analysis. These samples will be collected and analyzed to provide data for characterizing the site to determine the environmental condition of the site and any further action to be conducted at the site. Additionally, samples will be collected from environmental media in locations that will assist in the assessment of potential ecological impacts resulting from activities at the site.

4.2.1 Surface Soil Sampling

Surface soil samples will be collected from three locations at the Former Personnel and Equipment Decontamination Station, Parcel 206(7).

4.2.1.1 Sample Locations and Rationale

The surface soil sampling rationale is listed in Table 4-1. Proposed sampling locations are shown on Figure 4-1. Surface soil sample designations and QA/QC sample requirements are summarized in Table 4-2. The final soil boring sampling locations will be determined in the field by the on-site geologist, based on actual field conditions.

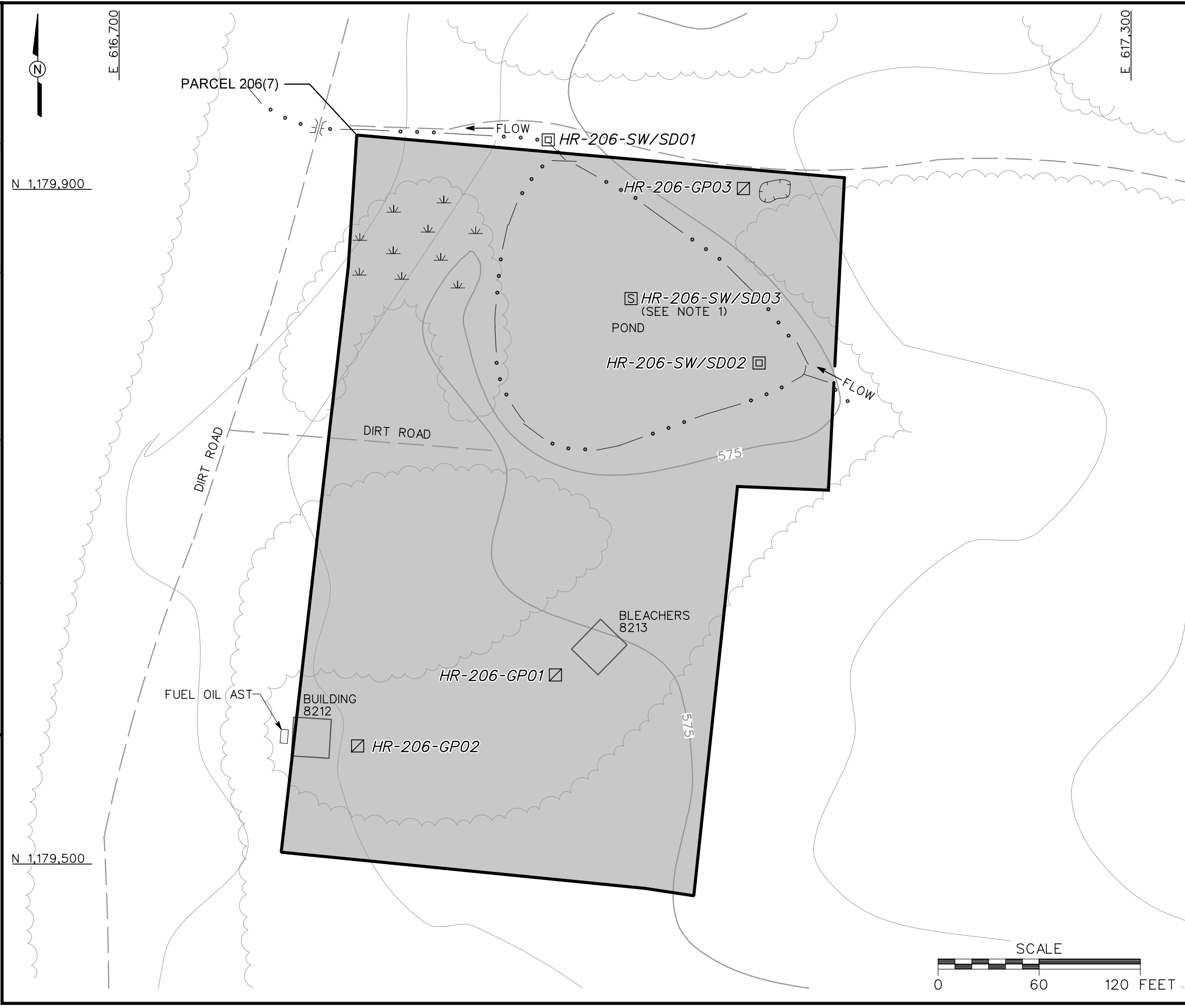
4.2.1.2 Sample Collection

Surface soil samples will be collected from the upper 1 foot of soil by direct-push methodology as specified in Section 4.7.1.1 of the SAP (IT, 2000a). Collected soil samples will be screened using a photoionization detector (PID) in accordance with Section 4.15 of the SAP. Surface soil samples will be screened for information purposes only and not to aid the selection of samples for analysis. Sample containers, sample volumes, preservatives, and holding times for the analyses required in this SFSP are listed in Section 5.0, Table 5-1, of the QAP. Sample documentation and chain-of-custody records will be kept as specified in Section 4.13 of the SAP. The samples will be analyzed for the parameters listed in Section 4.5 of this SFSP.

Table 4-1

Sampling Locations and Rationale
Site Investigation
Former Personnel and Equipment Decontamination Station, Parcel 206(7)
Fort McClellan, Calhoun County, Alabama

Sample Location	Sample Media	Sample Location Rationale
HR-206-GP01	Surface soil Subsurface soil	Soil boring for surface and subsurface soil samples will be collected southwest of Building 8213 (identified as bleachers) directly south of the pond in Parcel 206(7). Sample data will indicate if contaminant releases into the environment have occurred from this area of the site and if contaminated soil exists at this location. Soil sample data will also be used to assess potential impacts to terrestrial biota that might utilize the site for food and/or habitat purposes.
HR-206-GP02	Surface soil Subsurface soil	Soil boring for surface and subsurface soil samples will be collected directly to the east of Building 8212 on the western edge of Parcel 206(7). Sample data will indicate if contaminant releases into the environment have occurred from this area of the site and if contaminated soil exists at this location. Soil sample data will also be used to assess potential impacts to terrestrial biota that might utilize the site for food and/or habitat purposes.
HR-206-GP03	Surface soil Subsurface soil	Soil boring for surface and subsurface soil samples will be collected in the northeastern corner of Parcel 206(7). Sample data will indicate if contaminant releases into the environment have occurred from this area of the site and if contaminated soil exists at this location. Soil sample data will also be used to assess potential impacts to terrestrial biota that might utilize the site for food and/or habitat purposes.
HR-206-SW/SD01	Surface water sediment	The sample location will be placed at the northern portion of the pond. Sample data will indicate if contaminant releases into the environment have occurred from this area of the site. Sample data will also be used to assess potential impacts to aquatic biota in the waterway and other ecological receptors that may utilize the waterway for food and/or habitat purposes.
HR-206-SW/SD02	Surface water sediment	The sample location will be placed at the eastern portion of the pond. Sample data will indicate if contaminant releases into the environment have occurred from this area of the site. Sample data will also be used to assess potential impacts to aquatic biota in the waterway and other ecological receptors that may utilize the waterway for food and/or habitat purposes.
HR-206-SW/SD03	3 surface water and 1 sediment	The sample location will be placed in the center of the pond. Sample data will indicate if contaminant releases into the environment have occurred to the pond. Sample data will also be used to assess potential impacts to aquatic biota in the waterway and other ecological receptors that may utilize the waterway for food and/or habitat purposes. Three surface water samples will be collected at different depths at this location. Each surface water sample will be analyzed separately.



LEGEND

UNIMPROVED ROADS

PAVED ROADS

BUILDING

TOPOGRAPHIC CONTOUR
(CONTOUR INTERVAL - 5 FOOT)

TREES / TREELINE

MARSH / WETLANDS

PARCEL BOUNDARY

CULVERT WITH HEADWALL

SURFACE DRAINAGE / CREEK

DEPRESSION

PROPOSED SURFACE WATER/SEDIMENT
SAMPLE LOCATION

PROPOSED SURFACE AND SUBSURFACE
SOIL SAMPLE LOCATION

PROPOSED SURFACE AND SUBSURFACE
WATER/SEDIMENT SAMPLE LOCATION

NOTE:

1. THREE SURFACE WATER SAMPLES AND ONE SEDIMENT WILL BE COLLECTED. THE SURFACE WATER SAMPLES WILL BE COLLECTED AT THREE DISCRETE LEVELS IN THE WATER COLUMN; APPROXIMATELY TOP, MIDDLE, AND BOTTOM.

FIGURE 4-1
PROPOSED SAMPLE LOCATION MAP
FORMER PERSONNEL AND EQUIPMENT
DECONTAMINATION STATION
PARCEL 206(7)

U. S. ARMY CORPS OF ENGINEERS
MOBILE DISTRICT
FORT McCLELLAN
CALHOUN COUNTY, ALABAMA
Contract No. DACA21-96-D-0018

Table 4-2

**Surface Soil and Subsurface Soil Sample Designations and QA/QC Sample Quantities
Site Investigation
Former Personnel and Equipment Decontamination Station,
Parcel 206(7)
Fort McClellan, Calhoun County, Alabama**

Sample Location	Sample Designation	Sample Depth (ft)	QA/QC Samples			Analytical Suite
			Field Duplicates	Field Splits	MS/MSD	
HR-206-GP01	HR-206-GP01-SS-MM0001-REG	0-1			HR-206-GP01-SS-MM0001-MS/MSD	TCL VOCs, TCL SVOCs, TAL Metals, Nitroexplosives, and CWM breakdown products
	HR-206-GP01-DS-MM0002-REG	a				
HR-206-GP02	HR-206-GP02-SS-MM0003-REG	0-1				TCL VOCs, TCL SVOCs, TAL Metals, Nitroexplosives, and CWM breakdown products
	HR-206-GP02-DS-MM0004-REG	a				
HR-206-GP03	HR-206-GP03-SS-MM0005-REG	0-1	HR-206-GP03-SS-MM0006-FD			TCL VOCs, TCL SVOCs, TAL Metals, Nitroexplosives, and CWM breakdown products
	HR-206-GP03-DS-MM0007-REG	a				

^a Actual sample depth selected for analysis will be at the discretion of the site geologist and will be based on field observation.

CWM - Chemical warfare material

FD - Field duplicate.

ft - Feet

MS/MSD - Matrix spike/matrix spike duplicate.

QA/QC - Quality assurance/quality control.

REG - Field sample.

SVOC - Semivolatile organic compound.

TAL - Target analyte list.

TCL - Target compound list.

VOC - Volatile organic compound.

4.2.2 Subsurface Soil Sampling

Subsurface soil samples will be collected from the three soil borings installed at the Former Personnel and Equipment Decontamination Station, Parcel 206(7).

4.2.2.1 Sample Locations and Rationale

Subsurface soil samples will be collected from the soil borings proposed on Figure 4-1. The subsurface soil sampling rationale is listed in Table 4-1. Subsurface soil samples to be collected are listed in Table 4-2. The final soil boring sampling locations will be determined in the field by the on-site geologist, based on actual field observations and UXO and utility clearance results.

4.2.2.2 Sample Collection

Subsurface soil samples will be collected from three soil borings at a depth greater than 1 foot bgs in the unsaturated zone. The soil borings will be advanced and soil samples collected using the direct-push sampling procedures specified in Section 4.7.1.1 of the SAP (IT, 2000a).

Soil samples will be collected continuously for the first 12 feet or until either groundwater or refusal is reached. A detailed lithological log will be recorded by the on-site geologist for each borehole. At least one subsurface sample from each borehole will be selected for analysis. The collected subsurface soil samples will be field-screened using a PID in accordance with Section 4.15 of the SAP to measure samples exhibiting elevated readings exceeding background (readings in ambient air). Typically, the subsurface soil sample showing the highest reading (above background) will be selected and sent to the laboratory for analysis. If none of the samples indicate a reading exceeding background using the PID, the deepest interval from the soil boring will be sampled and submitted to the laboratory for analysis. Subsurface soil samples may be selected for analysis from any depth interval if the on-site geologist suspects PSSCs at the interval. Site conditions such as lithology may also determine the actual sample depth interval submitted for analysis. More than one subsurface soil sample will be collected if field measurements and observations indicate a possible layer of PSSCs and/or additional sample data would provide insight to the existence of any PSSCs.

Sample documentation and chain-of-custody records will be kept as specified in Section 4.13 of the SAP. Sample containers, sample volumes, preservatives, and holding times for the analyses required in this SFSP are listed in Section 5.0, Table 5-1 of the QAP. The samples will be analyzed for the parameters listed in Section 4.5 of this SFSP.

4.2.3 Surface Water Sampling

Five surface water samples will be collected from the small pond at the northern end of the Former Personnel and Equipment Decontamination Station, Parcel 206(7). Three surface water samples will be collected from location HR-206-SW/SD03.

4.2.3.1 Sample Locations and Rationale

The surface water sampling rationale is listed in Table 4-1. The surface water samples will be collected from the proposed locations on Figure 4-1. The surface water sample designations and QA/QC sample requirements are listed in Table 4-3. The exact sampling locations will be determined in the field by the ecological sampler, based on drainage pathways and actual field observations.

4.2.3.2 Sample Collection

Five surface water samples will be collected from the small pond area. One surface water sample each will be collected at locations HR-206-SW/SD01 and HR-206-SW/SD02. Both surface water samples will be collected from the top of the water column (0 to 1 foot) at these two locations. Three surface water samples will be collected from location HR-206-SW/SD03. Each of the surface water samples collected at location HR-206-SW/SD03 will be collected at a discrete interval within the water column and analyzed separately.

Prior to collecting the surface water samples, field measurements of pH, temperature, dissolved oxygen, oxidation-reduction potential, conductivity, and turbidity will be collected from the water column from top to bottom to determine if there is significant stratification or a thermocline present. However, if field measurements indicate obvious layers in the pond, then the depths of the surface water samples will be adjusted to sample within the different layers. The field measurements and the depth for each surface water sample will be recorded on each sample collection sheet. The three proposed sample intervals for the surface water samples collected at location HR-206-SW/SD03, will be the top of the water column, middle of the water column, and the bottom of the water column. These three sample depths are expected to be approximately 0 to 1 foot, 2 to 3 feet, and 4 to 5 feet, respectively. The surface water samples will be collected before the sediment sample is collected to ensure that sediment is not introduced into the surface water samples. The deepest surface water sample must be carefully collected to avoid disturbing the sediment.

Table 4-3

**Surface Water and Sediment Sample Designations and QA/QC Sample Quantities,
Former Personnel and Equipment Decontamination Station,
Parcel 206(7)
Fort McClellan, Calhoun County, Alabama**

Sample Location	Sample Designation	Sample Matrix	Sample Depth (ft)	QA/QC Samples			Analytical Suite
				Field Duplicates	Field Splits	MS/MSD	
HR-206-SW/SD01	HR-206-SW/SD01-SW-MM2001-REG	Surface Water	NA			HR-206-SW/SD01-SW-MM2001-MS/MSD	TCL VOCs, TCL SVOCs, TAL Metals, Nitroexplosives, CWM Breakdown products TOC, and Grain Size (sediment only)
	HR-206-SW/SD01-SD-MM1001-REG	Sediment	0 - 0.5			HR-206-SW/SD01-SD-MM1001-MS/MSD	
HR-206-SW/SD02	HR-206-SW/SD02-SW-MM2002-REG	Surface Water	NA				TCL VOCs, TCL SVOCs, TAL Metals, Nitroexplosives, CWM Breakdown products TOC, and Grain Size (sediment only)
	HR-206-SW/SD02-SD-MM1002-REG	Sediment	0 - 0.5				
HR-206-SW/SD03	HR-206-SW/SD03-SW-MM2003-REG	Surface Water	0-1.0	HR-206-SW/SD03-SW-MM2004-FD			TCL VOCs, TCL SVOCs, TAL Metals, Nitroexplosives, CWM Breakdown products TOC, and Grain Size (sediment only)
	HR-206-SW/SD03-SW-MM2005-REG	Surface Water	2.0-3.0				
	HR-206-SW/SD03-SW-MM2006-REG	Surface Water	4.0-5.0				
	HR-206-SW/SD03-SD-MM1003-REG	Sediment	0 - 0.5	HR-206-SW/SD03-SD-MM1004-FD			

CWM - Chemical warfare material.

FD - Field duplicate.

ft - Feet.

MS/MSD - Matrix spike/matrix spike duplicate.

QA/QC - Quality assurance/quality control.

NA - Not applicable.

REG - Field sample.

SVOC - Semivolatile organic compound.

TAL - Target analyte list.

TCL - Target compound list.

VOC - Volatile organic compound.

Sampling personnel will utilize a 14-foot flat-bottom (Jon) boat or similar boat to collect surface water and sediment samples from the center of the pond at Former Personnel and Equipment Decontamination Station, Parcel 206(7). UXO procedures for anomaly avoidance during the collection of surface water and sediment samples are provided in Section 4.2.4.2 below, and in the site-specific UXO safety plan for this site contained in this binder.

A discrete subsurface water sampler will be used to collect the surface water samples at the discrete levels as determined by the ecological sampler. This type of sampling device will allow samples to be collected from within the three proposed intervals (0-1 foot, 2-3 feet, and 4-5 feet) or other intervals as indicated by the field measurements. The sampling device uses a sealed glass bottle attached to a metal tubing handle that is submerged to the required sample depth to collect the sample. The sample for the volatile organic compounds analysis will be collected first at each sample interval. The sample bottle will be cleaned between each sample collection for each different sample interval.

The surface water samples will be collected in accordance with the procedures specified in Section 4.9.1.3 of the SAP (IT, 2000a). Sample documentation and chain-of-custody records will be recorded as specified in Section 4.13 of the SAP. Sample containers, sample volumes, preservatives, and holding times for the analyses required in this SFSP are listed in Section 5.0, Table 5-1, of the QAP. The samples will be analyzed for the parameters listed in Section 4.5 of this SFSP.

4.2.4 Sediment Sampling

Three sediment samples will be collected from the small, unnamed pond at the northern end of the Former Personnel and Equipment Decontamination Station, Parcel 206(7). These sediment samples will be collected at the same locations as the surface water samples described in Section 4.2.3.

4.2.4.1 Sample Locations and Rationale

The proposed locations for the sediment samples are shown in Figure 4-1. Sediment sampling rationale is presented in Table 4-1. The sediment sample designations and QA/QC sample requirements are listed in Table 4-3. The actual sediment sample points will be at the discretion of the ecological sampler, based on the drainage pathways and actual field observations.

4.2.4.2 Sample Collection

In order to collect the sediment sample from the center of the pond at Former Personnel and Equipment Decontamination Station, Parcel 206(7), sampling personnel will utilize a 14-foot flat-bottom (Jon) boat or similar boat. IT UXO personnel will be in charge of the sediment sampling activities and perform visual surveys, assisted by hand-held magnetometers and metal detectors to support the collection of surface water and sediment samples from the pond at Former Personnel and Equipment Decontamination Station, Parcel 206(7). More detailed UXO procedures for anomaly avoidance during the collection of surface water and sediment sampling procedures are provided in the site-specific UXO safety plan for this site and are contained in this binder.

As a minimum, the following equipment will be present in the boat: three paddles, two life vests, a life ring with sufficient line to reach across the pond, a length of polyvinyl chloride (PVC) pipe of approximately seven feet, a hand auger with extensions, and appropriate sampling equipment. (As a minimum, the PVC pipe should be long enough to extend approximately 6 inches above the side of the boat and must be of sufficient inside diameter to allow for the insertion of the downhole magnetometer probe and the hand auger.)

All personnel involved in collecting sediment samples will be able to swim. Additionally, all personnel will wear life vests at all times. Extreme caution must be exercised, as a boat is an unstable platform. Additionally, a minimum of two personnel will be present at the shoreline equipped with a life ring, life vests, and emergency communications equipment.

After the boat is in position at the sampling location, the PVC pipe will be pushed downward until it comes in contact with the bottom of the pond. The probe of the downhole magnetometer will then be dropped down the pipe until it reaches the bottom of the pond. If an anomaly is detected, the magnetometer and pipe will be removed and the location adjusted until no anomaly is detected. If no anomalies are detected, the probe will be withdrawn and sediment sampling may begin. Because of the quantity of material required for sampling, several samples of sediment may have to be retrieved at each sampling location.

To retrieve a sediment sample, the hand auger will be inserted down the pipe until it comes in contact with the bottom of the pond. Because the boat will attempt to turn as the auger is twisted, the auger will be turned utilizing quick, sharp movements to obtain the sample. Sampling personnel are not to stand up while in the boat to prevent anyone from falling

overboard. If the bottom surface does not allow for easy removal of the sample and there is excessive movement in the boat, the UXO team leader may decide to tether the boat with a line running in opposite directions to anchor points on shore.

Once a sufficient quantity of sample material has been recovered, the pipe will be removed. The sample will be packaged in accordance with sampling procedures listed in this section. At this time the boat will be moved to the next sampling location and the sampling process repeated.

The sediment samples will be collected in accordance with the procedures specified in Section 4.9.1.2 of the SAP. Sediment samples for volatile organic analysis will be collected in EnCore sampling devices. Sample documentation and chain-of-custody records will be recorded as specified in Section 4.13 of the SAP. The sediment samples will be analyzed for the parameters listed in Section 4.5 of this SFSP.

4.3 Decontamination Requirements

Decontamination will be performed on sampling and nonsampling equipment to prevent cross-contamination between sampling locations. Decontamination of sampling equipment will be performed in accordance with the requirements presented in Section 4.10.1.1 of the SAP (IT, 2000a). Decontamination of nonsampling equipment will be performed in accordance with the requirements presented in Section 4.10.1.2 of the SAP.

4.4 Surveying of Sample Locations

All areas at this site must be cleared for UXO avoidance before any surveying activities will commence.

Sampling locations will be marked with pin flags, stakes, and/or flagging and will be surveyed using either global positioning system (GPS) or conventional civil survey techniques, as necessary, to obtain the required level of accuracy. Horizontal coordinates will be referenced to the U.S. State Plane Coordinate System, Alabama East Zone, North American Datum, 1983. Elevations will be referenced to the North American Vertical Datum of 1988.

Horizontal coordinates for soil sample locations will be recorded using a GPS to provide accuracy within 1 meter. Procedures to be used for GPS surveying are described in Section 4.3 of the SAP. Conventional land survey requirements are presented in Section 4.19 of the SAP.

Horizontal coordinates for soil sample locations will be recorded using a GPS to provide accuracy within 1 meter. Procedures to be used for GPS surveying are described in Section 4.3 of the SAP. Conventional land survey requirements are presented in Section 4.19 of the SAP.

4.5 Analytical Program

Samples collected at locations specified in this chapter of this SFSP will be analyzed for specific suites of chemicals and elements based on the history of site usage, as well as EPA, ADEM, FTMC, and USACE requirements. Target analyses for samples collected from the Former Personnel and Equipment Decontamination Station, Parcel 206(7), consist of the following list of analytical suites:

- Target compound list VOCs - Method 5035/8260B
- Target compound list semivolatile organic compounds - Method 8270C
- Target analyte metals - Method 6010B/7000
- Nitroexplosives - Method 8330
- Chemical agent breakdown products- Methods 8270/8321.

In addition, the sediment samples will be analyzed for the following list of parameters:

- Total organic carbon - Method 9060
- Grain size - ASTM D-421/D-422.

The samples will be analyzed using EPA SW-846 methods, including Update III Methods where applicable, as presented in Table 4-4 in this SFSP and Table 6-1 in the QAP. Data will be reported and evaluated in accordance with CESAS Level B criteria (USACE, 1994) and the stipulated requirements for the generation of definitive data (Section 3.1.2 of the QAP). Chemical data will be reported via hard-copy data packages by the laboratory using Contract Laboratory Program-like forms along with electronic copies. These packages will be validated in accordance with EPA National Functional Guidelines Level III criteria.

4.6 Sample Preservation, Packaging, and Shipping

Sample preservation, packaging, and shipping will follow the procedures specified in Section 4.13.2 of the SAP (IT, 2000a). Completed analysis request/chain-of-custody records will be secured and included with each shipment of coolers to:

Attn: Elizabeth McIntyre
EMAX Laboratories, Inc.
1835 205th Street

Table 4-4

**Analytical Samples
Site Investigation
Former Personnel and Equipment Decontamination Station
Parcel 206(7)
Fort McClellan, Calhoun County, Alabama**

Parameters	Analysis Method	Sample Matrix	TAT Needed	Field Samples			QA/QC Samples ^a					EMAX	QA Lab
				No. of Sample Points	No. of Events	No. of Field Samples	Field Dups (10%)	Splits w/ QA Lab (0%)	MS/MSD (5%)	Trip Blank (1/ship)	Eq. Rinse (1/wk/matrix)	Total No. Analysis	Total No. Analysis
Former Personnel and Equipment Decontamination Station, Parcel 206: 5 water matrix samples (5 surface water samples); 9 soil matrix samples (3 surface soil, 3 subsurface soil, and 3 sediment samples)													
TCL VOCs	8260B	water	normal	5	1	5	1		1	2	1	11	0
TCL SVOCs	8270C	water	normal	5	1	5	1		1		1	9	0
TAL Metals	6010B/7000	water	normal	5	1	5	1		1		1	9	0
Nitroexplosives	8330	water	normal	5	1	5	1		1		1	9	0
CWM BD Products	8321/8270M	water	normal	5	1	5	1		1		1	9	0
TCL VOCs	8260B	soil	normal	9	1	9	1		1	3	1	16	0
TCL SVOCs	8270C	soil	normal	9	1	9	1		1		1	13	0
TAL Metals	6010B/7000	soil	normal	9	1	9	1		1		1	13	0
Nitroexplosives	8330	soil	normal	9	1	9	1		1		1	13	0
CWM BD Products	8321/8270M	soil	normal	9	1	9	1		1		1	13	0
TOC	9060	sediment	normal	3	1	3	1		1			6	0
Grain Size	ASTM421/422	sediment	normal	3	1	3	1		1			6	0
Former Personnel and Equipment Decontamination Station Subtotal:						76	12	0	12	5	10	127	0

^aField duplicate and MS/MSD samples were calculated as a percentage of the field samples collected per site and were rounded to the nearest whole number.

Trip blank samples will be collected in association with water matrix samples for VOC analysis only. Assumed four field samples per day to estimate trip blanks. Equipment blanks will be collected once per event whenever sampling equipment is field decontaminated and re-used. They will be repeated weekly for sampling events that are anticipated to last more than 1 week. Assumed 20 field samples will be collected per week to estimate number of equipment blanks.

Ship samples to: EMAX Laboratories, Inc
1835 205th Street
Torrance, CA 90501
Attn: Elizabeth McIntyre
Tel: 310-618-8889
Fax: 310-618-0818.

ASTM - American Society for Testing and Materials.
BD - Breakdown.
CWM - Chemical warfare material.
Dups - Duplicates.
Eq. Rinse - Equipment rinse.

MS/MSD - Matrix spike/matrix spike duplicate.
QA/QC - Quality assurance/quality control.
SVOC - Semivolatile organic compound.
TAL - Target analyte list.
TCL - Target compound list.

TOC - Total organic carbon.
VOC - Volatile organic compound.
TAT - Turnaround time.

Torrance, California 90501
Telephone: (310) 618-8889.

4.7 Investigation-Derived Waste Management

Management and disposal of the investigation-derived wastes (IDW) will follow procedures and requirements as described in Appendix D of the SAP (IT, 2000a). The IDW expected to be generated at the Former Personnel and Equipment Decontamination Station, Parcel 206(7), will include decontamination fluids, drill cuttings, and disposable personal protective equipment.

4.8 Site-Specific Safety and Health

Safety and health requirements for this SI are provided in the SSHP attachment for the Former Personnel and Equipment Decontamination Station, Parcel 206(7). The SSHP attachment will be used in conjunction with the installation-wide safety and health plan. Additionally, the site-specific UXO safety plan attachment has been prepared as a necessary measure for UXO avoidance.

5.0 Project Schedule

The project schedule for the SI activities will be provided by the IT Project Manager to the Base Realignment and Closure Cleanup Team and will be in accordance with the WP.

6.0 References

Environmental Science and Engineering, Inc. (ESE), 1998, ***Final Environmental Baseline Survey, Fort McClellan, Alabama***, prepared for U.S. Army Environmental Center, Aberdeen Proving Ground, Maryland, January.

IT Corporation (IT), 2000a, ***Final Installation-Wide Sampling and Analysis Plan, Fort McClellan, Calhoun County, Alabama***, March.

IT Corporation (IT), 2000b, ***Final Human Health and Ecological Screening Values and PAH Background Summary Report, Fort McClellan, Calhoun County, Alabama***, July.

IT Corporation (IT), 1998, ***Final Installation-Wide Work Plan, Fort McClellan, Calhoun County, Alabama***, August.

U.S. Army Center for Health Promotion and Preventative Medicine (CHPPM), 1999, ***Preliminary Assessment No. 38-EH-1775-99 Fort McClellan Army National Guard Training Center, Fort McClellan, Alabama***, 28 May- 17 June.

U.S. Army Corps of Engineers (USACE), 2000, ***Statement of Work for Task Order CK05, Modification No. 10, National Guard Memorandum of Agreement Sites, Fuel/Training Areas SI, Waste Chemical Storage Area SI, Fire Training Pit SI, Industrial Landfill Remedial Design, UST Review, Range J RI, and Partnering Facilities at Fort McClellan, Alabama***, August.

U.S. Army Corps of Engineers (USACE), 1994, ***Requirements for the Preparation of Sampling and Analysis Plan***, Engineer Manual EM 200-1-3, September 1.

U.S. Department of Agriculture, 1961, ***Soil Survey, Calhoun County, Alabama***, Soil Conservation Service, Series 1958, No. 9, September.

U.S. Environmental Protection Agency (EPA), 1993, ***Data Quality Objectives Process for Superfund, Interim Final Guidance***, EPA 540-R-93-071, September.

ATTACHMENT 1

LIST OF ABBREVIATIONS AND ACRONYMS

List of Abbreviations and Acronyms

2,4-D	2,4-dichlorophenoxyacetic acid
2,4,5-T	2,4,5-trichlorophenoxyacetic acid
2,4,5-TP	silvex
3D	3D International Environmental Group
Abs	skin absorption
AC	hydrogen cyanide
AcB2	Anniston and Allen gravelly loams, 2 to 6 percent slopes, eroded
AcC2	Anniston and Allen gravelly loams, 6 to 10 percent slopes, eroded
AcD2	Anniston and Allen gravelly loams, 10 to 15 percent slopes, eroded
AcE2	Anniston and Allen gravelly loams, 15 to 25 percent slopes, eroded
ACGIH	American Conference of Governmental Industrial Hygienists
ADEM	Alabama Department of Environmental Management
AEL	airborne exposure limit
AHA	ammunition holding area
AL	Alabama
amb.	amber
ANAD	Anniston Army Depot
APT	armor-piercing tracer
ARAR	applicable or relevant and appropriate requirement
ASP	ammunition supply point
ASR	Archives Search Report
AST	aboveground storage tank
ASTM	American Society for Testing and Materials
AWWSB	Anniston Water Works and Sewer Board
‘B’	Analyte detected in laboratory or field blank at concentration greater than the reporting limit (and greater than zero)
BCT	BRAC Cleanup Team
BEHP	bis(2-ethylhexyl)phthalate
BFB	bromofluorobenzene
BG	Bacillus globigii
bgs	below ground surface
BHC	betahexachlorocyclohexane
bkg	background
bls	below land surface
BOD	biological oxygen demand
BRAC	Base Realignment and Closure
Braun	Braun Intertec Corporation
BTAG	Biological Technical Assistance Group
BTEX	benzene, toluene, ethyl benzene, and xylenes
BTOC	below top of casing
BW	biological warfare
BZ	breathing zone; 3-quinuclidinyl benzilate
C	ceiling limit value
Ca	carcinogen
CCAL	continuing calibration
CCB	continuing calibration blank
CD	compact disc
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act

CERFA	Community Environmental Response Facilitation Act
CESAS	Corps of Engineers South Atlantic Savannah
CG	carbonyl chloride (phosgene)
CFC	chlorofluorocarbon
ch	inorganic clays of high plasticity
CHPPM	U.S. Army Center for Health Promotion and Preventive Medicine
CK	cyanogen chloride
cl	inorganic clays of low to medium plasticity
Cl.	chlorinated
CLP	Contract Laboratory Program
CN	chloroacetophenone
CNB	chloroacetophenone, benzene, and carbon tetrachloride
CNS	chloroacetophenone, chloropicrin, and chloroform
Co-60	cobalt-60
COC	chain of custody; contaminant of concern
COE	Corps of Engineers
Con	skin or eye contact
COPC	contaminant of potential concern
COPEC	contaminant of potential environmental concern
CRL	certified reporting limit
CRZ	contamination reduction zone
Cs-137	cesium-137
CS	ortho-chlorobenzylidene-malononitrile
CSEM	conceptual site exposure model
ctr.	container
CWA	chemical warfare agent
CWM	chemical warfare material; clear, wide mouth
CX	dichloroformoxime
D	duplicate; dilution
DANC	decontamination agent, non-corrosive
°C	degrees Celsius
°F	degrees Fahrenheit
DCE	dichloroethene
DDD	dichlorodiphenyldichloroethane
DDE	dichlorodiphenyldichloroethene
DDT	dichlorodiphenyltrichloroethane
DEH	Directorate of Engineering and Housing
DEP	depositional soil
DI	deionized
DIMP	di-isopropylmethylphosphonate
DMMP	dimethylmethylphosphonate
DOD	U.S. Department of Defense
DOT	Department of Transportation
DP	direct-push
DPDO	Defense Property Disposal Office
DPT	direct-push technology
DQO	data quality objective
DRMO	Defense Reutilization and Marketing Office

DRO	diesel range organics
DS	deep (subsurface) soil
DS2	Decontamination Solution Number 2
DWEL	drinking water equivalent level
E&E	Ecology and Environment, Inc.
EBS	environmental baseline survey
EE/CA	engineering evaluation and cost analysis
Elev.	elevation
EM	electromagnetic
EM31	Geonics Limited EM31 Terrain Conductivity Meter
EM61	Geonics Limited EM61 High-Resolution Metal Detector
EOD	explosive ordnance disposal
EODT	explosive ordnance disposal team
EPA	U.S. Environmental Protection Agency
EPC	exposure point concentration
EPIC	Environmental Photographic Interpretation Center
ER	equipment rinsate
ESE	Environmental Science and Engineering, Inc.
ESV	ecological screening value
Exp.	explosives
E-W	east to west
EZ	exclusion zone
FAR	Federal Acquisition Regulations
FB	field blank
FD	field duplicate
FedEx	Federal Express, Inc.
FFE	field flame expedient
Fil	filtered
Flt	filtered
FMP 1300	Former Motor Pool 1300
Foster Wheeler	Foster Wheeler Environmental Corporation
Frtn	fraction
FS	field split; feasibility study
ft	feet
ft/ft	feet per foot
FTA	Fire Training Area
FTMC	Fort McClellan
g	gram
G-856	Geometrics, Inc. G-856 magnetometer
G-858G	Geometrics, Inc. G-858G magnetic gradiometer
gal	gallon
gal/min	gallons per minute
GB	sarin
gc	clay gravels; gravel-sand-clay mixtures
GC	gas chromatograph
GC/MS	gas chromatograph/mass spectrometer
GFAA	graphite furnace atomic absorption
GIS	Geographic Information System

List of Abbreviations and Acronyms (Continued)

gm	silty gravels; gravel-sand-silt mixtures	L	lewisite; liter	NIOSH	National Institute for Occupational Safety and Health
gp	poorly graded gravels; gravel-sand mixtures	LC ₅₀	lethal concentration for 50 percent of population tested	No.	number
gpm	gallons per minute	LD ₅₀	lethal dose for 50 percent of population tested	NOAA	National Oceanic and Atmospheric Administration
GPR	ground-penetrating radar	l	liter	NOAEL	no-observed-adverse-effects-level
GPS	global positioning system	LCS	laboratory control sample	NR	not requested; not recorded
GS	ground scar	LEL	lower explosive limit	ns	nanosecond
GSA	General Services Administration	LOAEL	lowest-observed-advserse-effects-level	N-S	north to south
GSBP	Ground Scar Boiler Plant	LT	less than the certified reporting limit	NS	not surveyed
GSSI	Geophysical Survey Systems, Inc.	max	maximum	nT	nanotesla
GST	ground stain	MCL	maximum contaminant level	NTU	nephelometric turbidity unit
GW	groundwater	MDL	method detection limit	O&G	oil and grease
gw	well-graded gravels; gravel-sand mixtures	mg/kg	milligrams per kilogram	OD	outside diameter
HA	hand auger	mg/L	milligrams per liter	OE	ordnance and explosives
HCl	hydrochloric acid	mg/m ³	milligrams per cubic meter	oh	organic clays of medium to high plasticity
HD	distilled mustard	mh	inorganic silts, micaceous or diatomaceous fine, sandy or silt soils	ol	organic silts and organic silty clays of low plasticity
HDPE	high-density polyethylene	MHz	megahertz	OP	organophosphorus
Herb.	herbicides	µg/g	micrograms per gram	ORP	oxidation-reduction potential
HNO ₃	nitric acid	µg/kg	micrograms per kilogram	OSHA	Occupational Safety and Health Administration
hr	hour	µg/L	micrograms per liter	OWS	oil/water separator
H&S	health and safety	µmhos/cm	micromhos per centimeter	oz	ounce
HSA	hollow-stem auger	min	minimum	PAH	polynuclear aromatic hydrocarbon
HTRW	hazardous, toxic, and radioactive waste	MINICAMS	miniature continuous air sampling system	Parsons	Parsons Engineering Science, Inc.
‘I’	out of control, data rejected due to low recovery	ml	inorganic silts and very fine sands	Pb	lead
ICAL	initial calibration	mL	milliliter	PCB	polychlorinated biphenyl
ICB	initial calibration blank	mm	millimeter	PCE	perchloroethene
ICP	inductively-coupled plasma	MM	mounded material	PCP	pentachlorophenol
ICS	interference check sample	MOGAS	motor vehicle gasoline	PDS	Personnel Decontamination Station
ID	inside diameter	MPA	methyl phosphonic acid	PEL	permissible exposure limit
IDL	instrument detection limit	MR	molasses residue	Pest.	pesticide
IDLH	immediately dangerous to life or health	MS	matrix spike	PG	professional geologist
IDM	investigative derived media	mS/cm	millisiemens per centimeter	PID	photoionization detector
IDW	investigation-derived waste	MSD	matrix spike duplicate	PkA	Philo and Stendal soils local alluvium, 0 to 2 percent slopes
IMPA	isopropylmethyl phosphonic acid	MTBE	methyl tertiary butyl ether	POL	petroleum, oils, and lubricants
IMR	Iron Mountain Road	msl	mean sea level	PP	peristaltic pump
in.	inch	MtD3	Montevallo shaly, silty clay loam, 10 to 40 percent slopes , severely eroded	ppb	parts per billion
Ing	ingestion	mV	millivolts	PPE	personal protective equipment
Inh	inhalation	MW	monitoring well	ppm	parts per million
IP	ionization potential	N/A	not applicable; not available	PPMP	Print Plant Motor Pool
IPS	International Pipe Standard	NAD	North American Datum	ppt	parts per thousand
IRDMIS	Installation Restoration Data Management Information System	NAD83	North American Datum of 1983	PRG	preliminary remediation goals
ISCP	Installation Spill Contingency Plan	NAVD88	North American Vertical Datum of 1988	PSSC	potential site-specific chemical
IT	IT Corporation	NCP	National Contingency Plan	pt	peat or other highly organic silts
ITEMS	IT Environmental Management System TM	ND	not detected	PVC	polyvinyl chloride
‘J’	estimated concentration	NE	no evidence; northeast	QA	quality assurance
JeB2	Jefferson gravelly fine sandy loam, 2 to 6 percent slopes, eroded	NFA	No Further Action	QA/QC	quality assurance/quality control
JeC2	Jefferson gravelly fine sandy loam, 6 to 10 percent slopes, eroded	ng/L	nanograms per liter	QAP	installation-wide quality assurance plan
JfB	Jefferson stony fine sandy loam, 0 to 10 percent slopes have strong slopes	NGVD	National Geodetic Vertical Datum	QC	quality control
K	conductivity	NIC	notice of intended change	QST	QST Environmental Inc.

List of Abbreviations and Acronyms (Continued)

qty	quantity
Qual	qualifier
‘R’	rejected; resample
RAO	removal action objective
RBC	EPA Region III Risk Based Concentration
RCRA	Resource Conservation and Recovery Act
RDX	cyclonite
ReB3	Rarden silty clay loams
REG	field sample
REL	recommended exposure limit
RFA	request for analysis
RI	remedial investigation
RL	reporting limit
RPD	relative percent difference
RRF	relative response factor
RSD	relative standard deviation
RTK	real-time kinematic
SAD	South Atlantic Division
SAE	Society of Automotive Engineers
SAIC	Science Applications International Corporation
SAP	installation-wide sampling and analysis plan
sc	clayey sands; sand-clay mixtures
Sch.	schedule
SD	sediment
SDG	sample delivery group
SDZ	safe distance zone; surface danger zone
SEMS	Southern Environmental Management & Specialties, Inc.
SFSP	site-specific field sampling plan
SGF	standard grade fuels
SHP	installation-wide safety and health plan
SI	site investigation
SL	standing liquid
sm	silty sands; sand-silt mixtures
SM	Serratia marcescens
SOP	standard operating procedure
sp	poorly graded sands; gravelly sands
SP	sump pump
Sr-90	strontium-90
Ss	stony rough land, sandstone series
SS	surface soil
SSC	site-specific chemical
SSHO	site safety and health officer
SSHP	site-specific safety and health plan
SSSL	site-specific screening level
STB	supertropical bleach
STEL	short-term exposure limit
STOLS	Surface Towed Ordnance Locator System®
Std. units	standard units

SU	standard unit
SVOC	semivolatile organic compound
SW	surface water
SW-846	U.S. EPA <i>Test Methods for Evaluating Solid Waste: Physical/Chemical Methods</i>
SZ	support zone
TAL	target analyte list
TAT	turn around time
TB	trip blank
TCA	trichloroethane
TCDD	2,3,7,8-tetrachlorodibenzo-p-dioxin
TCDF	tetrachlorodibenzofurans
TCE	trichloroethene
TCL	target compound list
TCLP	toxicity characteristic leaching procedure
TDGCL	thiodiglycol
TDGCLA	thiodiglycol chloroacetic acid
TERC	Total Environmental Restoration Contract
TIC	tentatively identified compound
TLV	threshold limit value
TN	Tennessee
TOC	top of casing; total organic carbon
TPH	total petroleum hydrocarbons
TRADOC	U.S. Army Training and Doctrine Command
TRPH	total recoverable petroleum hydrocarbons
TWA	time weighted average
UCL	upper confidence limit
UCR	upper certified range
‘U’	not detected above reporting limit
USACE	U.S. Army Corps of Engineers
USACHPPM	U.S. Army Center for Health Promotion and Preventive Medicine
USAEC	U.S. Army Environmental Center
USAEHA	U.S. Army Environmental Hygiene Agency
USACMLS	U.S. Army Chemical School
USAMPS	U.S. Army Military Police School
USATEU	U.S. Army Technical Escort Unit
USATHAMA	U.S. Army Toxic and Hazardous Material Agency
USCS	Unified Soil Classification System
USDA	U.S. Department of Agriculture
USEPA	U.S. Environmental Protection Agency
UST	underground storage tank
UXO	unexploded ordnance
VOA	volatile organic analyte
VOC	volatile organic compound
VOH	volatile organic hydrocarbon
VQlfr	validation qualifier
VQual	validation qualifier
VX	nerve agent (O-ethyl-S-[diisopropylaminoethyl]-methylphosphonothiolate)
Weston	Roy F. Weston, Inc.

WP	installation-wide work plan
WS	watershed
WSA	Watershed Screening Assessment
WWI	World War I
WWII	World War II
XRF	x-ray fluorescence
yd ³	cubic yards

SAIC – Data Qualifiers, Codes and Footnotes, 1995 Remedial Investigation

N/A – Not analyzed

ND – Not detected

Boolean Codes

LT – Less than the certified reporting limit

Flagging Codes

9 – Non-demonstrated/validated method performed for USAEC

B – Analyte found in the method blank or QC blank

C – Analysis was confirmed

D – Duplicate analysis

I – Interfaces in sample make quantitation and/or identification to be suspicious

J – Value is estimated

K – Reported results are affected by interfaces or high background

N – Tentatively identified compound (match greater than 70%)

Q – Sample interference obscured peak of interest

R – Non-target compound analyzed for but not detected (GC/MS methods)

S – Non-target compound analyzed for and detected (GC/MS methods)

T – Non-target compound analyzed for but not detected (non GC/MS methods)

U – Analysis in unconfirmed

Z – Non-target compound analyzed for and detected (non-GC/MS methods)

Qualifiers

J – The low-spike recovery is low

N – The high-spike recovery is low

R – Data is rejected

**Final
Site-Specific Safety and Health Plan Attachment
Former Personnel and Equipment Decontamination
Station - Pelham Range, Parcel 206(7)**

**Fort McClellan
Calhoun County, Alabama**

Prepared for:

**U.S. Army Corps of Engineers, Mobile District
109 St. Joseph Street,
Mobile, Alabama 36602**

Prepared by:

**IT Corporation
312 Directors Drive
Knoxville, Tennessee 37923**

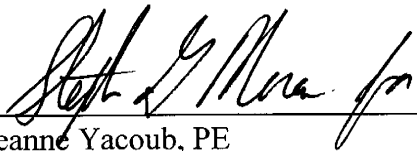
**Delivery Order CK05
Contract No. DACA21-96-D-0018
IT Project No. 774645**

June 2001

This Site-Specific Safety and Health Plan must be used in conjunction with the Installation-Wide Safety and Health Plan, Fort McClellan, Alabama.

**Site-Specific Safety and Health Plan Attachment Approval
Former Personnel and Equipment Decontamination Station
Pelham Range, Parcel 206(7)
Fort McClellan, Calhoun County, Alabama**

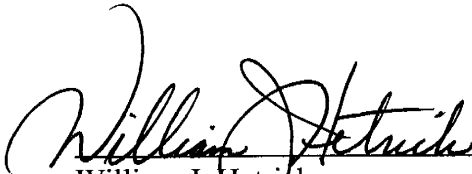
I have read and approve this site-specific safety and health plan attachment for the Former Personnel and Equipment Decontamination Station - Pelham Range, Parcel 206(7), at Fort McClellan, Alabama, with respect to project hazards, regulatory requirements, and IT Corporation procedures.



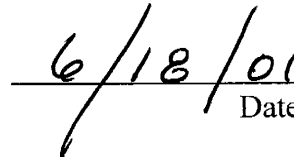
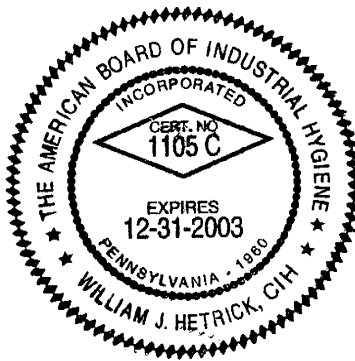
Jeanne Yacoub, PE
Project Manager



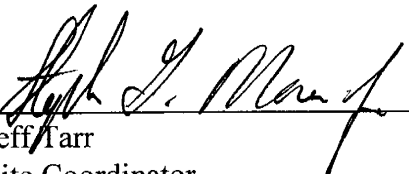
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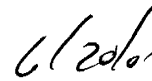
William J. Hetrick
Health & Safety Manager



Date



Jeff Tarr
Site Coordinator

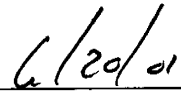


Date


Acknowledgements


The approved version of this site-specific safety and health plan (SSHP) attachment for the Former Personnel and Equipment Decontamination Station - Pelham Range, Parcel 206(7), at Fort McClellan, Alabama, has been provided to the site coordinator. I acknowledge my responsibility to provide the site coordinator with the equipment, materials, and qualified personnel to implement fully all safety requirements in this SSHP attachment. I will formally review this plan with the health and safety staff every 6 months until project completion.


Project Manager


Date

I acknowledge receipt of this SSHP attachment from the project manager, and that it is my responsibility to explain its contents to all site personnel and cause these requirements to be fully implemented. Any change in conditions, scope of work, or other change that might affect worker safety requires me to notify both the project manager and the health and safety manager.


Site Coordinator


Date

Site-Specific Safety and Health Plan Acknowledgement Form

I have been informed of, and will abide by the procedures set forth in, this site-specific safety and health plan attachment for work activities at the Former Personnel and Equipment Decontamination Station - Pelham Range, Parcel 206(7), Fort McClellan, Alabama.

DateThis image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Fort McClellan Gate Hours

Baltzell Gate	Baltzell Road. Open 24 hours daily, 7 days a week.
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Pelham Range Access Requirements

Pelham Range	IT personnel will contact the Range Control Office each day access is required to receive an access permit and available areas of entry. See Attachment 1 for Range Control contact for Pelham Range.
--------------	---

Fort McClellan Project Emergency Contacts

Range Control Office (Main Post).....	(256) 848-6772
Fire Department (on post).....	911
Fire Department (off post)	(256) 237-3541
Ambulance (off post)	911
Regional Medical Center	(256) 235-5121
Military Police (SSG Busch)	(256) 848-5680, 848-4824
DOD Guard Force (Mr. Bolton)	(256) 848-5680, 848-4732
Anniston Police Department	(256) 238-1800
Chemical Agent Emergencies	(256) 895-1598
(Jimmy Walker, CEHNC).....	cell phone (256) 759-3931
UXO Emergencies	(256) 895-1598
(Jimmy Walker, CEHNC).....	cell phone (256) 759-3931
UXO Nonemergencies/Reporting Only (Ronald Levy)	(256) 848-3758
Baltzell Gate Guard Shack.....	(256) 848-5693, 848-3821
National Response Center & Terrorist Hotline.....	(800) 424-8802
Poison Control Center.....	(800) 462-0800
EPA Region IV	(404) 562-8725
Ronald Levy, Chief, FTMC Environmental Management	(256) 848-3758
Ellis Pope, U.S. Army Corps of Engineers	(334) 690-3077
Jeanne Yacoub, IT Project Manager	(770) 663-1429
Bill Hetrick, IT H&S Manager	(865) 690-3211, pager (888) 655-9529
Mike Moore, Fort McClellan Safety Office.....	(256) 848-5433
Dr. Jerry H. Berke, Health Resources Occupational Physician	(800) 350-4511
Sergeant Tim Lane, National Guard Security Operations	(256) 848-6176

Table of Contents

	Page
List of Tables	ii
List of Figures	ii
List of Acronyms	iii
1.0 Site Work Plan Summary	1
2.0 Site Characterization and Analysis	2
2.1 Anticipated Hazards	2
2.2 General Site Information.....	3
3.0 Personal Protective Equipment.....	5
4.0 Site Monitoring	7
5.0 Activity Hazard Analysis.....	8
Attachment 1 - Pelham Range Emergency Route and Range Control Contact	

List of Tables

Number	Title	Follows Page
2-1	Toxicological Properties of Chemicals	3
4-1	Action Levels	7
4-2	Air Monitoring Frequency and Location	7
5-1	Activity Hazard Analysis	8

List of Figures

Number	Title	Follows Page
1-1	Organization Chart	1
5-1	Hospital Emergency Route	7

List of Acronyms

See Attachment 1 in the Site-Specific Field Sampling Plan, List of Abbreviations and Acronyms.

1.0 Site Work Plan Summary

Project Objective. The U.S. Army is conducting studies of the environmental impact of suspected contaminants at Fort McClellan (FTMC) in Calhoun County, Alabama, under the management of the U.S. Army Corps of Engineers (USACE)-Mobile District. The USACE has contracted IT Corporation (IT) to provide environmental services for the site investigation (SI) at the Former Personnel and Equipment Decontamination Station, Parcel 206(7). In order to determine whether potential site-specific chemicals (PSSC) are present, IT will execute the following project tasks:

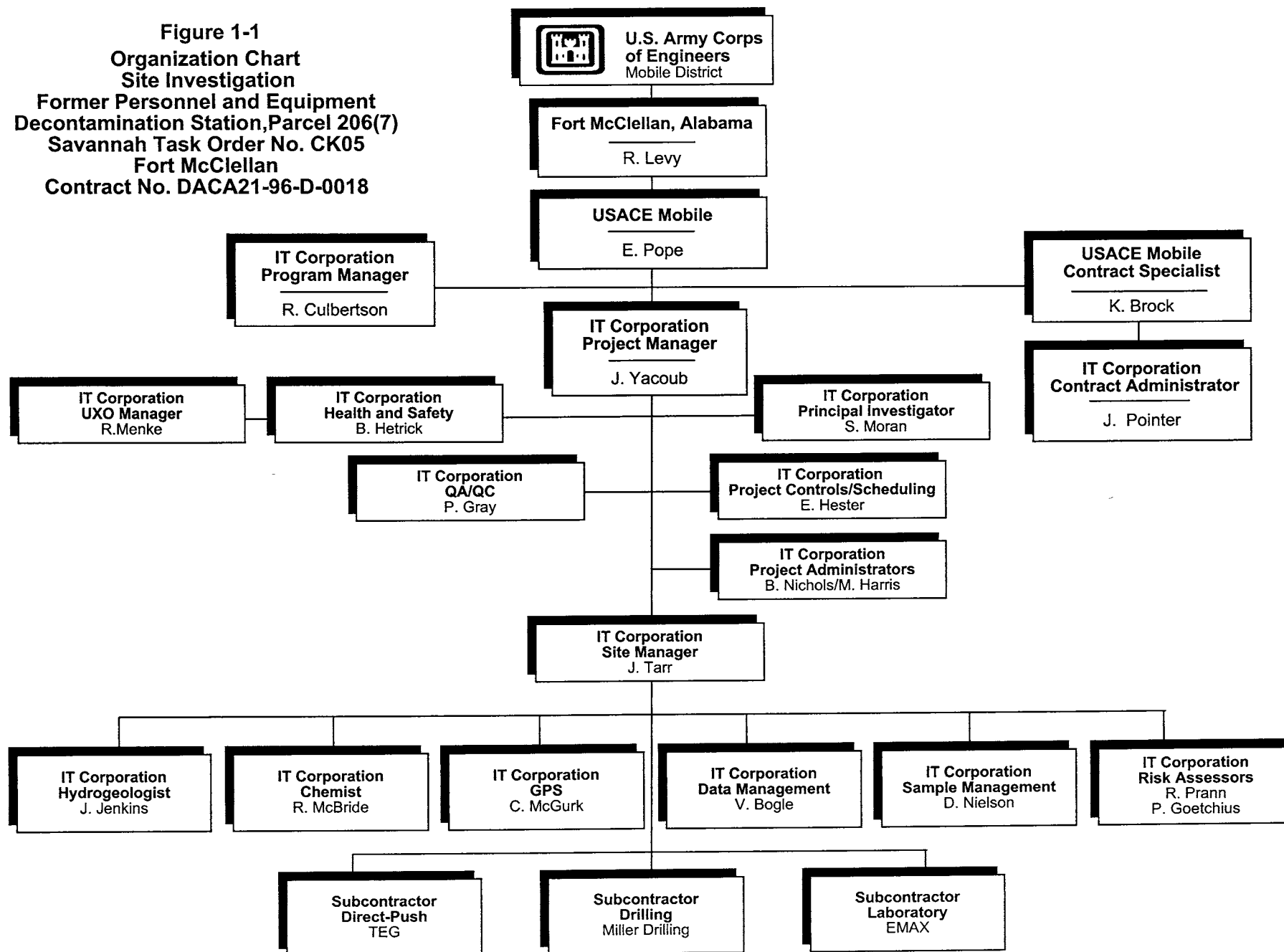
- Collection of three surface soil samples
- Collection of three subsurface soil samples
- Collection of five surface water samples
- Collection of three sediment samples.

Personnel Requirements. Up to 10 employees. See Figure 1-1 for an organization chart.

Note: All personnel on this site shall have received training, informational programs, and medical surveillance as outlined in the installation-wide safety and health plan (SHP) for site investigations at FTMC and shall be familiar with the requirements of this site-specific safety and health plan (SSHP).

This SSHP must be used in conjunction with the installation-wide SHP.

Figure 1-1
Organization Chart
Site Investigation
Former Personnel and Equipment
Decontamination Station, Parcel 206(7)
Savannah Task Order No. CK05
Fort McClellan
Contract No. DACA21-96-D-0018



2.0 Site Characterization and Analysis

2.1 Anticipated Hazards

The activity hazard analysis in Chapter 5.0 contains project-specific practices used to reduce or eliminate anticipated site hazards. The activity hazard analysis lists specific chemical and physical hazards that may be present and encountered during each task from on-site operations. Below each task is a list of hazards and specific actions that will be taken to control the respective hazards. Control measures may include work practice controls, engineering controls, and/or use of appropriate personal protective equipment (PPE). Site control using specific work zones (support zone, contamination reduction zone, and exclusion zone) is addressed in Chapter 7.0 of Appendix A of the IT 2000 *Final Installation-Wide Sampling and Analysis Plan, Fort McClellan, Calhoun County, Alabama*.

The Former Personnel and Equipment Decontamination Station, Parcel 206(7), is located on the east side of the road that extends south from Gate 6 in Training Area 4B, at north central Pelham Range. The decontamination station was reportedly used during the 1950s and 1960s as a decontamination area for outer garments and equipment potentially contaminated by mustard (H), distilled mustard (HD), and lewisite (L). The equipment and outer garments were decontaminated using subtropical bleach (STB), decontamination agent (noncorrosive) (DANC), and/or decontamination solution number 2 (DS2) (Environmental Science and Engineering, Inc. [ESE], 1998).

An individual interviewed during the environmental baseline survey (EBS) reported that the Former Personnel and Equipment Decontamination Station, Parcel 206(7), was a secondary decontamination station, stating that soap and water only were used. The individual also reported that outer garments and equipment were decontaminated at an area near Rideout Hall prior to moving personnel and equipment to the Former Personnel and Equipment Decontamination Station, Parcel 206(7). No interview notes provide information to indicate the use of STB, DANC, and/or DS2 at this site. During the interview, the only agent referred to in conjunction with this site was lewisite (U.S. Army Center for Health Promotion and Preventative Medicine [CHPPM], 1996).

The parcel is approximately three acres in size and allows unrestricted access. A small, unnamed pond is located in the northern half of the Former Personnel and Equipment Decontamination, Parcel 206(7). The size of the pond is approximately 160 feet wide from east to west and 190

feet long from south to north, approximately 0.5 acre total. The depth is approximately 5 feet deep. Weathered-erosion features allow surface water to drain into the pond at the southeasternmost point and out of the pond at its northernmost tip. Smoke pots were floated on the pond during training exercises, and some unburned smoke pots were thrown into the pond (CHPPM, 1999).

Because of the potential that unauthorized disposal of materials into the pond has occurred, and because training in the use of floating smoke pots reportedly occurred at this location, the pond was included in the parcel during the EBS (ESE, 1998).

The USACE-Huntsville has evaluated the site and does not consider it a chemical warfare material (CWM) location. IT has received approval to conduct intrusive sampling on site without USACE-Huntsville conducting and providing a safety submission.

Table 2-1 lists the toxicological properties of chemicals believed to have been used at the Former Personnel and Equipment Decontamination Station, Pelham Range, Parcel 206(7), Fort McClellan, Alabama.

The Former Personnel and Equipment Decontamination Station, Parcel 206(7), was associated with Training Area 4B, north central Pelham Range; therefore, the presence of unexploded ordnance (UXO) is suspected. Procedures contained in the site-specific UXO safety plan shall be followed for all site activities associated with this investigation. Additionally, all intrusive operations in support of hazardous, toxic, and radioactive waste (HTRW) investigation will require UXO avoidance safety. Sediment sampling in the pond area, where training in the use of smoke pots reportedly occurred, will also require UXO avoidance procedures.

2.2 General Site Information

Location of Site. The Former Personnel and Equipment Decontamination Station, Parcel 206(7), is located on the east side of the road that extends south from Gate 6 in Training Area 4B, north central Pelham Range. The current status of the area allows unrestricted access.

Duration of Planned Employee Activity. Employee activity duration is anticipated to be less than 1 month.

Table 2-1
Toxicological Properties of Chemicals
Site Investigation
Former Personnel and Equipment Decontamination Station - Parcel 206(7)
Fort McClellan, Calhoun County, Alabama

(Page 1 of 3)

Substance [CAS]	IP ^a (eV)	Odor Threshold (ppm)	Route ^b	Symptoms of Exposure	Treatment	TWA ^c	STEL ^d	Source ^e	IDLH (NIOSH) ^f
Gasoline [8006-61-9]	NA	0.3	Inh Ing Con	Intoxication, headaches, blurred vision, dizziness, nausea; eye, nose throat irritation; potential kidney and other cancers. Carcinogenic.	Eye: Irrigate immediately (15 min) Skin: Soap wash promptly Breath: Respiratory support Swallow: Immediate medical attention	300 ppm Ca, lowest feasible conc. (LOQ 15 ppm)	500 ppm	PEL TLV REL	1400 ppm 10% of LEL
Fuel oil (diesel oil, medium)	NA	NA	Ing Inh Con	Ingestion causes nausea, vomiting, and cramps; depressed central nervous system, headache, coma, death; pulmonary irritation; kidney and liver damage; aspiration causes severe lung irritation, coughing, gagging, dyspnea, substernal stress, pulmonary edema; bronchopneumonia; excited, then depressed, central nervous system.	Eye: Irrigate promptly Skin: Soap wash Breath: Respiratory support Swallow: Immediate medical attention Aspiration: Immediate medical attention	100 mg/m3 * 100 mg/m3 ** * Skin ** Kerosene only	--	PEL TLV REL	--
Nitric acid [7697-37-2]	11.95	0.3-1	Inh Ing Con	Irritated eyes, mucous membranes, and skin; delayed pulmonary edema, pneumonitis, bronchitis; dental erosion.	Eye: Irrigate immediately Skin: Water flush promptly Breath: Respiratory support Swallow: Immediate medical attention	2 ppm 2 ppm 2 ppm	4 ppm 4 ppm 4 ppm	PEL TLV REL	25 ppm
Motor Oil [NA]	NA	NA	Inh Ing	Irritated eyes, skin, respiratory system; usually only a problem if misted or ingested.	Eye: Irrigate immediately (15 min) Skin: Soap wash immediately Swallow: Immediate medical attention	NA	NA	PEL TLV REL	--
n-Hexane [110-54-3]	10.18	65-248	Inh Ing Con	Lightheadedness; nausea, headache; numbness of the extremities, muscular weakness; irritation of the eyes and nose; dermatitis; chemical pneumonia; giddiness.	Eye: Irrigate immediately Skin: Soap wash immediately Breath: Respiratory support Swallow: Immediate medical attention	500 ppm 50 ppm (skin) 50 ppm	--	PEL TLV REL	1100 ppm 10% of LEL

Table 2-1

Toxicological Properties of Chemicals
Site Investigation
Former Personnel and Equipment Decontamination Station - Parcel 206(7)
Fort McClellan, Calhoun County, Alabama

(Page 2 of 3)

Substance [CAS]	IP ^a (eV)	Odor Threshold (ppm)	Route ^b	Symptoms of Exposure	Treatment	TWA ^c	STEL ^d	Source ^e	IDLH (NIOSH) ^f
				pneumonia; giddiness.	attention				
isopropyl alcohol (isopropanol) [67-63-0]	10.16	43-200	Inh Ing Con	Mild irritation of the eyes, nose, and throat; drowsiness, dizziness, headache; dry, cracked skin.	Eye: Irrigate immediately Skin: Water flush Breath: Respiratory support Swallow: Immediate medical attention	400 ppm 400 ppm 400 ppm	-- 500 ppm 500 ppm	PEL TLV REL	2,000 ppm 10% of LEL

^aIP = Ionization potential (electron volts).

^bRoute = Inh, Inhalation; Abs, Skin absorption; Ing, Ingestion; Con, Skin and/or eye contact.

^cTWA = Time-weighted average. The TWA concentration for a normal work day (usually 8 or 10 hours) and a 40-hour work week, to which nearly all workers may be repeatedly exposed, day after day without adverse effect.

^dSTEL = Short-term exposure limit. A 15-minute TWA exposure that should not be exceeded at any time during a workday, even if the TWA is not exceeded.

^ePEL = Occupational Safety and Health Administration (OSHA) permissible exposure limit (29 CFR 1910.1000, Table Z).

AEL = Airborne Exposure Limit.

TLV = American Conference of Governmental Industrial Hygiene (ACGIH) threshold limit value-TWA.

REL = National Institute for Occupational Safety and Health (NIOSH) recommended exposure limit.

^fIDLH (NIOSH) - Immediately dangerous to life or health (NIOSH). Represents the maximum concentration from which, in the event of respirator failure, one could escape within 30 minutes without a respirator and without experiencing any escape-impairing or irreversible health effects.

NE = No evidence could be found for the existence of an IDLH (NIOSH Pocket Guide to Chemical Hazards, Pub. 1998).

C = Ceiling limit value which should not be exceeded at any time.

Ca = Carcinogen.

NA = Not applicable.

? = Unknown.

LEL = Lower explosive limits.

LC₅₀ = Lethal concentration for 50 percent of population tested.

LD₅₀ = Lethal dose for 50 percent of population tested.

NIC = Notice of intended change (ACGIH).

Table 2-1

Toxicological Properties of Chemicals Site Investigation Former Personnel and Equipment Decontamination Station - Parcel 206(7) Fort McClellan, Calhoun County, Alabama

(Page 3 of 3)

References:

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Amoore, J. E. Hautula, "Odor as an Aid to Chemical Safety," Journal of Applied Toxicology, 1983.

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Documentation of TLVs and BEIs, American Conference of Governmental Industrial Hygienists, 6th ed., 1998.

Fazzuluri, F. A., Compilation of Odor and Taste Threshold Values Data, American Society for Testing and Materials, 1978.

Gemet, L. J. Van, Compilation of Odor Threshold Values in Air and Water, CIVO, Netherlands, 1977.

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Lewis, Richard J., Sr., 1992, Sax's Dangerous Properties of Industrial Materials, 8th ed., Van Nostrand Reinhold, New York.

Micromedex Tomes Plus (R) System, 1992, Micromedex, Inc.

National Institute for Occupational Safety and Health Pocket Guide to Chemicals, Pub. 1998, National Institute for Occupational Safety and Health.

Odor Threshold for Chemicals with Established Occupational Health Standards, American Industrial Hygiene Association, 1989.

Respirator Selection Guide, 3M Occupational Health and Safety Division, 1993.

Verschueren, K., Handbook of Environmental Data on Organic Chemicals, Van Nostrand and Reinhold, 1977.

Warning Properties of Industrial Chemicals-Occupational Health Resource Center, Oregon Lung Association.

Workplace Environmental Exposure Levels, American Industrial Hygiene Association, 1992.

Site Topography and Size. The parcel area is approximately three acres in size and contains an unnamed pond to the north of the decontamination station. The elevation averages 575 feet above mean sea level, with moderate slopes.

Pathways for Hazardous Substance Dispersion. Possible pathways for hazardous substances in the area are soils, sediment, and surface water.

3.0 Personal Protective Equipment

The work activities will begin in the following levels of protection. Also, a complete description of Level D, Modified Level D, and Level C PPE is provided.

Task	Initial Level of PPE
Initial UXO avoidance sweep and equipment staging	Level D
Surveying	Level D
Surface water and sediment sampling	Modified Level D*
Surface and subsurface soil sampling	Modified Level D*

* Initial level will be raised to Level C or higher if air monitoring results in the breathing zone (BZ) are greater than action levels.

Level D. The minimal level of protection that will be required of IT personnel at the site will be Level D. The following equipment will be used for Level D protection:

- Coveralls or work clothing
- Leather work gloves (when necessary)
- Steel-toed safety boots
- Safety glasses
- Hard hat
- Hearing protection (when working near/adjacent to operating equipment).

Modified Level D. The following equipment will be used for Level D-Modified protection:

- Permeable Tyvek, Kleenguard, or its equivalent (Saran-coated tyvek where chemical agents are anticipated)
- Latex boot covers
- Nitrile, heavy work, or latex gloves
- Steel-toed safety boots
- Safety glasses
- Hard hat

- Hearing protection (when working near/adjacent to operating equipment).

Note: In addition to modified Level D PPE, the operator of high-pressure water jetting equipment shall wear a face shield and metatarsal guards for protection of the legs.

Level C. Level C protection will not be used unless air-monitoring data indicate the need for upgrade; however, the equipment shall be readily available on site. The following equipment will be used for Level C protection:

- National Institute of Occupational Safety and Health/Mine Safety and Health Administration-approved full-face, air-purifying respirators equipped with organic vapor/acid gas cartridge in combination with high-efficiency particulate air filter
- Hooded, Saran-coated Tyvek taped at gloves, boots, and respirator
- Nitrile gloves (outer)
- Latex or lightweight nitrile gloves (inner)
- Neoprene steel-toed boots or polyvinyl chloride overbooties/steel-toed safety boots
- Hard hat
- Hearing protection (when working near/adjacent to operating equipment).

Note: In addition to Level C PPE, the operator of high-pressure water jetting equipment shall wear a face shield and metatarsal guards for protection of the legs and feet.

4.0 Site Monitoring

The environmental contaminants of concern resulting from activities at the Former Personnel and Equipment Decontamination Station, Parcel 206(7), are primarily unknown but, based on historical information and former employee interviews, are most likely limited to lewisite (L). Because the area was reportedly used as a secondary decontamination station for outer garments during the 1950s and 1960s, it is possible that residual STB, DANC, and DS2 could be present. However, there should not be any CWM present; the CWM should have been removed at the primary decontamination station. Table 4-1 contains action levels for site monitoring at the Former Personnel and Equipment Decontamination Station, Parcel 206(7).

Chemical. Air monitoring shall be performed by the site safety and health officer or task geologist during the performance of ground-intrusive operations. A calibrated flame ionization detector (e.g., OVA 128 or equivalent) organic vapor analyzer will be utilized to monitor the sampling locations and breathing zones (BZ) to determine if any organic material is present that would necessitate upgrading of the protection level. A calibrated combustible gas/oxygen indicator will be utilized to monitor the work areas and BZs to determine if any combustible/flammable oxygen levels are present that would necessitate evacuation of the work area. Table 4-2 contains the air monitoring frequency and location for site monitoring at the Former Personnel and Equipment Decontamination Station, Parcel 206(7).

Unexploded Ordnance. UXO support for sampling activities is specified in the site-specific UXO safety plan developed for the Former Personnel and Equipment Decontamination Station, Parcel 206(7). UXO specialists will perform UXO avoidance sweeps prior to moving heavy equipment onto the site. During this operation, UXO on the surface will be detected and marked for avoidance during field operations. Additionally, downhole magnetometer surveys will be performed to detect metal objects in the path of the boring apparatus and invasive tools used in support of the SI. The boring location will be moved, if necessary, to avoid subsurface metal objects.

If UXO is encountered, personnel will contact both the site manager and UXO specialist immediately. Personnel will evacuate the immediate area and secure it.

Table 4-1

**Action Levels
Site Investigation
Former Personnel and Equipment Decontamination Station - Parcel 206(7)
Fort McClellan, Calhoun County, Alabama**

When in Level C PPE

Analyte	Action Level	Required Action ^a
VOCs	≥ 10 ppm above background in breathing zone	Stop work, evacuate work area, upgrade to Level B; Notify CIH
Oxygen	≥ 20%, ≤23% < 20%, >23%	Normal operations. Stop work, evacuate work area. Notify CIH
Flammable vapors	≥ 10% LEL < 10% LEL	Stop work, evacuate work area. Notify CIH Continue operations, monitor for VOCs.

When in Level D/Modified D PPE

Analyte	Action Level	Required Action ^b
VOCs	≥ 5 ppm above background in BZ	Stop activities, suspend work activities for 15 to 30 minutes, if readings are sustained then upgrade to Level C PPE; Notify CIH
Oxygen	≥ 20%, ≤23% < 20%, >23%	Normal operations. Stop work, evacuate work area. Notify CIH
Flammable vapors	≥ 10% LEL < 10% LEL	Stop work, evacuate work area. Notify CIH Continue operations, monitor for VOCs.

When in Support Zone

Analyte	Action Level	Required Action
VOCs	≥ 1 ppm above background in BZ	Evacuate support zone and re-establish perimeter of exclusion zone.

^a Four instantaneous peaks in any 15-minute period or a sustained reading for 5 minutes in excess of the action level will trigger a response.

^b Contact with the H&S manager must be made prior to continuance of work. The H&S manager may then initiate perimeter/integrated air sampling along with additional engineering controls.

BZ - Breathing zone.

CIH - Certified Industrial Hygienist.

H&S - Health and safety.

LEL - Lower explosive limit.

PPE - Personal protective equipment.

ppm - Parts per million.

VOC - Volatile organic compound.

No one is permitted to downgrade levels of PPE without authorization from the H&S manager.

Table 4-2

**Air Monitoring Frequency and Location
Site Investigation
Former Personnel and Equipment Decontamination Station - Parcel 206(7)
Fort McClellan, Calhoun County, Alabama**

Work Activity	Instrument	Frequency	Location
UXO Sweep and Staging Equipment	OV Monitor	Initially for area	Breathing zone of employees
Sampling (surface and subsurface soil, surface water, and sediment)	OV Monitor	Continuously	BZ of employees
	LEL/O ₂ Monitor	Initially for area	BZ of employees
Surveying	OV Monitor	Initially for area	BZ of employees
	LEL/O ₂ Monitor	Initially for area	BZ of employees

BZ -Breathing zone.
LEL/O₂ -Lower explosive level/oxygen.
OV -Organic vapor.
UXO -Unexploded ordnance.

5.0 Activity Hazard Analysis

The attached activity hazard analysis (Table 5-1) is provided for the following field activities:

- Initial UXO avoidance sweep and equipment staging
- Surveying
- Surface and subsurface soil, surface water and sediment sampling.

All injuries and illnesses must be immediately reported to the site manager or the site safety and health officer, who will then notify off-site personnel and organizations as necessary.

If hospital care must be provided, the victim shall be treated at Northeast Regional Medical Center. Directions to the hospital are provided on Figure 5-1.

Table 5-1

**Activity Hazard Analysis
Site Investigation
Former Personnel and Equipment Decontamination Station - Parcel 206(7)
Fort McClellan, Calhoun County, Alabama**

(Page 1 of 7)

Activity	Potential Hazards	Recommended Controls
Initial UXO avoidance sweep and equipment staging	Slip, trip, and fall hazards	<ul style="list-style-type: none"> Determine best access route before transporting equipment. Practice good housekeeping; keep work area picked up and clean as feasible. Continually inspect the work area for slip, trip, and fall hazards. Look before you step; ensure safe and secure footing.
	Heavy lifting	<ul style="list-style-type: none"> Use proper lifting techniques. Lifts greater than 60 pounds require assistance or mechanical equipment.
	Falling objects	<ul style="list-style-type: none"> Stay alert and clear of materials suspended overhead; wear hard hat and steel-toed boots.
	Flying debris, dirt, dust, etc.	<ul style="list-style-type: none"> Wear safety glasses/goggles; ensure that eye wash is in proper working condition.
	Pinch points	<ul style="list-style-type: none"> Keep hands, fingers, and feet clear of moving/suspended materials and equipment. Beware of contact points. Stay alert at all times!
	Cuts/bruises	<ul style="list-style-type: none"> Use cotton or leather work gloves for material handling.
	Bees, spiders, and snakes	<ul style="list-style-type: none"> Inspect work area carefully and avoid placing hands and feet into concealed areas.
	Ticks	<ul style="list-style-type: none"> Wear light colored clothing (can see ticks better). Mow vegetated and small brush areas. Wear insect repellent. Wear long sleeves and long pants. Visually check oneself and others promptly and frequently after exiting the work area.
	Fire	<ul style="list-style-type: none"> Fire extinguishers shall be suitably placed, distinctly marked, readily accessible, and maintained in a fully charged and operable condition.
	Hazard communication	<ul style="list-style-type: none"> Label all containers as to contents and dispose of properly. Ensure Material Safety Data Sheets (MSDS) are available for hazardous chemicals used on site.
	Noise	<ul style="list-style-type: none"> Sound levels above 85 decibels (dBA) mandates hearing protection.
	Lighting	<ul style="list-style-type: none"> Adequate lighting will be provided to ensure a safe working environment.
	Cold stress	<ul style="list-style-type: none"> Workers should wear insulated clothing when temperatures drop below 40 degrees Fahrenheit (F). Drink warm beverages on breaks. Refrain from drinking caffeinated beverages. Remove wet clothing promptly. Take breaks in warm areas. Reduce work periods as necessary. Layer work clothing.
	Poison ivy/oak/sumac	<ul style="list-style-type: none"> Avoid plant areas if possible. Wear long sleeves and long pants. Promptly wash clothing that has contacted poisonous plants. Wash affected areas immediately with soap and water.
	Heat rash	<ul style="list-style-type: none"> Keep the skin clean and dry. Change perspiration-soaked clothing, as necessary. Bathe at end of work shift or day. Apply powder to affected area.

Table 5-1

**Activity Hazard Analysis
Site Investigation
Former Personnel and Equipment Decontamination Station - Parcel 206(7)
Fort McClellan, Calhoun County, Alabama**

(Page 2 of 7)

Activity	Potential Hazards	Recommended Controls
Initial UXO avoidance sweep and equipment staging (continued)	Heat cramps	<ul style="list-style-type: none"> • Drink plenty of cool fluids even when not thirsty. • Provide cool fluid for work crews. • Move victim to shaded, cool area.
	Heat exhaustion	<ul style="list-style-type: none"> • Conduct physiological worker monitoring as needed (i.e., heart rate, oral temperature). • Set up work/rest periods. • Use the buddy system. • Allow workers time to acclimate. • Have ice packs available for use. • Take frequent breaks.
	Heat stroke	<ul style="list-style-type: none"> • Evaluate possibility of night work. • Perform physiological monitoring on workers during breaks. • Wear body cooling devices.
	Contact with moving equipment/vehicles	<ul style="list-style-type: none"> • Work area will be barricaded/demarcated. • Equipment will be laid out in an area free of traffic flow. • Barricades shall be used on or around work areas when it is necessary to prevent the inadvertent intrusion of pedestrian traffic. • Barriers shall be used to protect workers from vehicular traffic. • Barriers shall be used to guard excavations adjacent to streets or roadways. • Flagging shall be used for the short term (less than 24 hours) to identify hazards until proper barricades or barriers are provided. • Heavy equipment shall have backup alarms.
	Forklift operations	<ul style="list-style-type: none"> • Use qualified and trained forklift operators. • The operator shall not exceed the load capacity rating for the forklift. • The load capacity shall be clearly visible on the forklift. • Forklift operators shall inform their supervisor of any prescribed medication that they are taking that would impair their judgement.
	Portable electric tools	<ul style="list-style-type: none"> • Portable electric tools that are unsafe due to faulty plugs, damaged cords, or other reasons, shall be tagged (do not use) and removed from service. • Portable electric tools and all cord and plug connected equipment shall be protected by a ground-fault circuit interrupter (GFCI) device. • Electrical tools shall be inspected daily prior to use.

Table 5-1

**Activity Hazard Analysis
Site Investigation
Former Personnel and Equipment Decontamination Station - Parcel 206(7)
Fort McClellan, Calhoun County, Alabama**

(Page 3 of 7)

Activity	Potential Hazards	Recommended Controls
Initial UXO avoidance sweep and equipment staging (continued)	Extension cords	<ul style="list-style-type: none"> Extension cords that have faulty plugs, damaged insulation, or are unsafe in any way shall be removed from service. Cords shall be protected from damage from sharp edges, projections, pinch points (doorways), and vehicular traffic. Cords shall be suspended with a nonconductive support (rope, plastic ties, etc.). Cords shall be designed for hard duty. Cords shall be inspected daily.
	Lightning strikes	<ul style="list-style-type: none"> Whenever possible, halt activities and take cover. If outdoors, stay low to the ground. Limit the body surface area that is in contact with the ground (i.e., kneeling on one knee is better than laying on the ground). Seek shelter in a building if possible. Stay away from windows. If available, crouch under a group of trees instead of one. Keep all body parts in contact with the ground as close as possible. Remain 6 feet away from tree trunk if seeking shelter beneath tree(s). If in a group, keep 6 feet of distance between people.
	Thunderstorms, tornados	<ul style="list-style-type: none"> Listen to radio or TV announcements for pending weather information. Cease field activities during thunderstorm or tornado warnings. Seek shelter. Do not try to outrun a tornado.
Surveying	Slip, trip, and fall hazards	<ul style="list-style-type: none"> Site workers will be required to wear hard hat, safety glasses with side shields, work gloves, and steel-toe boots when working in the field. Provide adequate lighting in all work areas. Whenever possible, avoid routing cords and hoses across walking pathways. Flag or cover inconspicuous holes to protect against falls. Work areas will be kept clean and orderly. Garbage and trash will be disposed of daily in approved refuse containers. Tools and accessories will be properly maintained and stored. Work areas and floors will be kept free of dirt, grease, and slippery materials.
	Traffic accidents	<ul style="list-style-type: none"> Place physical barrier (i.e., barricades, fencing) around work areas regularly occupied by pedestrians. If working adjacent to roadways, have workers wear fluorescent orange vests. Use warning signs or lights to alert oncoming traffic. Assign flag person(s) if necessary to direct local traffic. Set up temporary parking locations outside the immediate work area. Motor vehicle operators shall obey all posted traffic signs, signals, and speed limits. Pedestrians have the right-of-way. Wear seat belts when vehicles are in motion.

Table 5-1

**Activity Hazard Analysis
Site Investigation
Former Personnel and Equipment Decontamination Station - Parcel 206(7)
Fort McClellan, Calhoun County, Alabama**

(Page 4 of 7)

Activity	Potential Hazards	Recommended Controls
Surveying (continued)	Wildlife hazards	<ul style="list-style-type: none"> Workers should be cautious when driving through the site in order to avoid encounters with passing animals.
	Biological hazards	<ul style="list-style-type: none"> Walking through overgrown grass areas, watch for snakes (rattlesnakes, moccasins, copperheads).
	Ticks	<ul style="list-style-type: none"> Wear light colored clothing (can see ticks better). Mow vegetated and small brush areas. Wear insect repellent. Wear long sleeves and long pants. Visually check oneself promptly and frequently after exiting the work area.
	Poison ivy/oak/sumac	<ul style="list-style-type: none"> Avoid plant areas if possible. Wear long sleeves and long pants. Promptly wash clothing that has contacted poisonous plants. Wash affected areas immediately with soap and water.
	UXO	<ul style="list-style-type: none"> UXO avoidance monitoring will be conducted by a UXO specialist prior to beginning activities. If UXO is encountered, cease all activities, mark the location, and notify the site manager.
Surface and subsurface soil sampling/surface water and sediment sampling	Cross-contamination and contact with potentially contaminated materials	<ul style="list-style-type: none"> Sampling technicians will wear proper protective clothing and equipment to safeguard against potential contamination. Avoid skin contact with water. Handle samples with care. Only essential personnel will be in the work area. Real-time air monitoring will take place before and during sampling activities. All personnel will follow good hygiene practices. Proper decontamination procedures will be followed. All liquids and materials used for decontamination will be contained and disposed of in accordance with federal, state, and local regulations.
	Cut hazards	<ul style="list-style-type: none"> Use care when handling glassware. Wear adequate hand protection.
	Hazard communication	<ul style="list-style-type: none"> MSDSs shall be obtained for chemicals brought on site. Label all containers as to contents. All personnel shall have received training in this SSHP and the IWSHP/OE Management Plan.
	Strains/sprains	<ul style="list-style-type: none"> Use the proper tool for the job being performed. Get assistance if needed. Avoid twisting/turning while pulling on tools, moving equipment, etc.
	Spills/residual materials	<ul style="list-style-type: none"> Absorbent material and containers will be kept available where leaks or spills may occur.
	Lighting	<ul style="list-style-type: none"> Adequate lighting will be provided to ensure a safe working environment.
	Unattended worker	<ul style="list-style-type: none"> Use "buddy system" - visual contact will be maintained with the sampling technician during sampling activities.

Table 5-1

**Activity Hazard Analysis
Site Investigation
Former Personnel and Equipment Decontamination Station - Parcel 206(7)
Fort McClellan, Calhoun County, Alabama**

(Page 5 of 7)

Activity	Potential Hazards	Recommended Controls
Surface and subsurface soil sampling/surface water and Sediment sampling (continued)	Cross-contamination and contact with potentially contaminated materials	<ul style="list-style-type: none"> • Stop immediately at any sign of obstruction. • Sampling technicians will wear proper protective clothing and equipment to safeguard against potential contamination. • Only essential personnel will be in the work area. • Real-time air monitoring will take place before and during sampling activities. • All personnel will follow good hygiene practices. • Proper decontamination procedures will be followed. • All liquids and materials used for decontamination will be contained and disposed of in accordance with federal, state, and local regulations.
	Cut hazards	<ul style="list-style-type: none"> • Use care when handling glassware. • Wear adequate hand protection.
	Slip, trip, and fall hazards	<ul style="list-style-type: none"> • Site workers will be required to wear hard hat, safety glasses with side shields, work gloves, and steel-toe/shank boots when working in the field. • Whenever possible, avoid routing cords and hoses across walking pathways. • Flag or cover inconspicuous holes to protect against falls.
	Bees, spiders, and snakes	<ul style="list-style-type: none"> • Workers shall inspect the work area carefully and avoid placing hands and feet into concealed areas. • Evaluate need for sensitive workers to have prescribed antibiotic or medicine to combat onset of symptoms.
	Poison ivy/oak/sumac	<ul style="list-style-type: none"> • Avoid plant areas if possible. • Wear long sleeves and long pants. • Promptly wash clothing that has contacted poisonous plants. • Wash affected areas immediately with soap and water.
	Cold stress	<ul style="list-style-type: none"> • Workers should wear insulated clothing when temperatures drop below 40F. • Drink warm beverages on breaks. Refrain from drinking caffeinated beverages. • Remove wet clothing promptly. • Take breaks in warm areas. • Reduce work periods as necessary. • Layer work clothing.
	Access/egress hazards	<ul style="list-style-type: none"> • Use qualified and trained bushhog operator. • Keep employees out of the bushhog work area. • Utilize good housekeeping practices. • Keep aiseways, pathways, and work areas free of obstruction. • Use appropriate footwear for the task assigned.
	Heat rash	<ul style="list-style-type: none"> • Keep the skin clean and dry. • Change perspiration-soaked clothing, as necessary. • Bathe at end of work shift or day. • Apply powder to affected area.

Table 5-1

**Activity Hazard Analysis
Site Investigation
Former Personnel and Equipment Decontamination Station - Parcel 206(7)
Fort McClellan, Calhoun County, Alabama**

(Page 6 of 7)

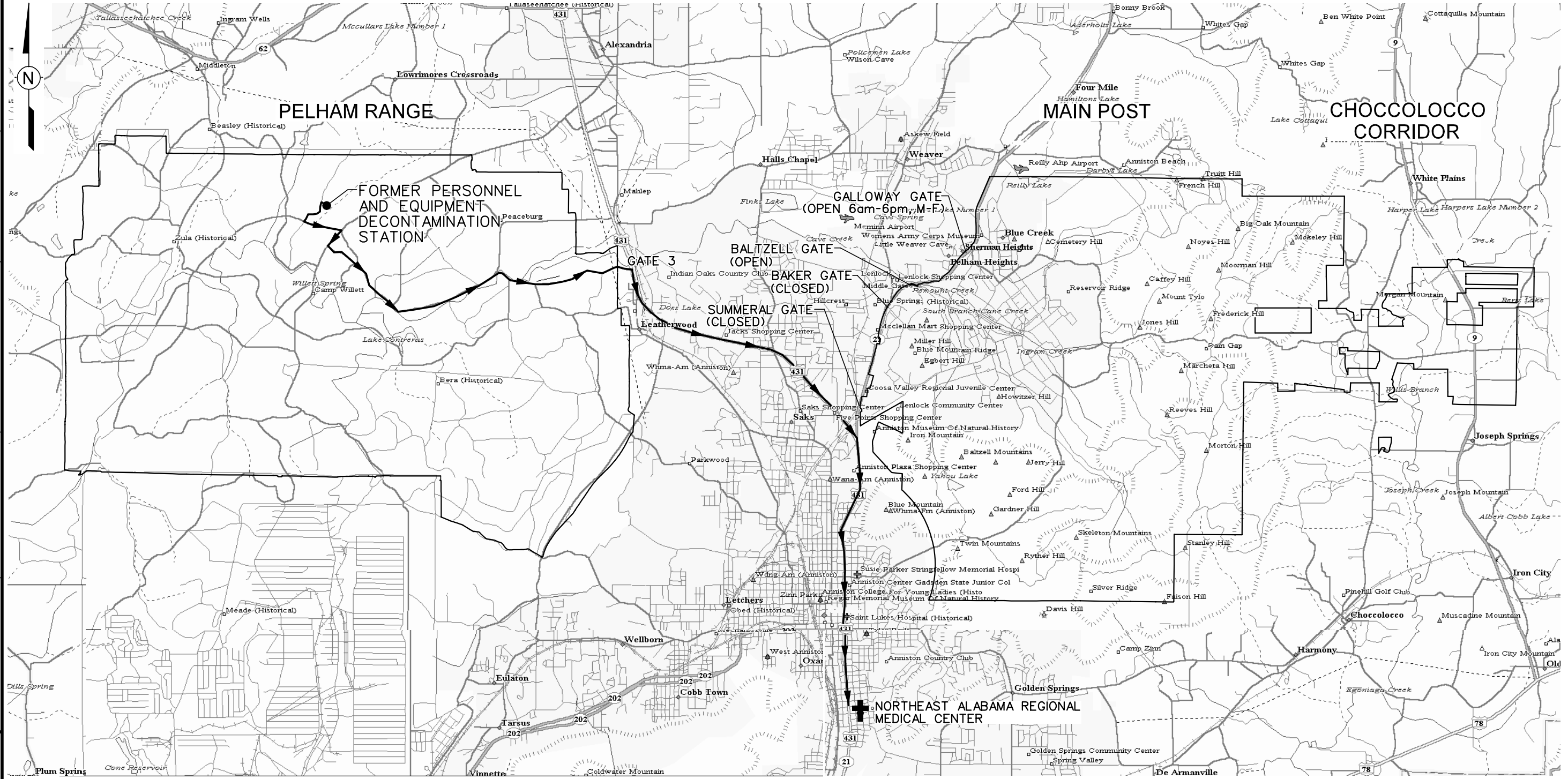
Activity	Potential Hazards	Recommended Controls
Surface and subsurface soil sampling/surface water and sediment sampling(continued)	Heat cramps	<ul style="list-style-type: none"> • Drink plenty of cool fluids even when not thirsty. • Provide cool fluid for work crews. • Move victim to shaded, cool area.
	Heat exhaustion	<ul style="list-style-type: none"> • Conduct physiological worker monitoring as needed (i.e., heart rate, oral temperature). • Set up work/rest periods. • Use the buddy system. • Allow workers time to acclimate. • Have ice packs available for use. • Take frequent breaks.
	Heat stroke	<ul style="list-style-type: none"> • Evaluate possibility of night work. • Perform physiological monitoring on workers during breaks. • Wear body cooling devices.
	Lightning strikes	<ul style="list-style-type: none"> • Whenever possible, halt activities and take cover. • If outdoors, stay low to the ground. • Limit the body surface area that is in contact with the ground (i.e., kneeling on one knee is better than laying on the ground). • Seek shelter in a building if possible. • Stay away from windows. • If available, crouch under a group of trees instead of one single tree. • Keep all body parts in contact with the ground as close as possible. • If in a group, keep 6 feet of distance between people.
	UXO	<ul style="list-style-type: none"> • UXO avoidance monitoring will be conducted by a UXO specialist prior to beginning activities. • If UXO is encountered, cease all activities, mark the location, and notify the site manager and UXO specialist. • UXO avoidance monitoring will be required for sediment sampling in the pond.
	Water hazards	<ul style="list-style-type: none"> • PFD's required for activities over and adjacent to water hazards in addition to use of the buddy system. • Communication equipment is required when working in water hazard locations. • Personnel will be equipped with an emergency egress air supply pack.
Moving and Shipping Collected Samples	Heavy lifting	<ul style="list-style-type: none"> • Use proper lifting techniques. Lifts greater than 60 pounds require assistance or mechanical equipment; size up the lift.
	Pinch points	<ul style="list-style-type: none"> • Keep hands, fingers, and feet clear of moving/suspended materials and equipment. • Beware of contact points. • Stay alert at all times!
	Cut hazards	<ul style="list-style-type: none"> • Wear adequate hand protection. Use care when handling glassware.
	Hazard communication	<ul style="list-style-type: none"> • Label all containers as to contents and associated hazards.
	Heavy lifting	<ul style="list-style-type: none"> • Use proper lifting techniques. Lifts greater than 60 pounds require assistance or mechanical equipment; size up the lift.

Table 5-1

**Activity Hazard Analysis
Site Investigation
Former Personnel and Equipment Decontamination Station - Parcel 206(7)
Fort McClellan, Calhoun County, Alabama**

(Page 7 of 7)

Activity	Potential Hazards	Recommended Controls
Material Storage	Flammable and combustible liquids	<ul style="list-style-type: none">• Store in NO SMOKING AREA.• Fire extinguisher readily available.• Transfer only when properly grounded and bonded.
Disposal of Investigation-Derived Waste (IDW) (Forklift Operation)	Personnel injury, property damage, and/or equipment damage	<ul style="list-style-type: none">• Use qualified and trained forklift operators.• The operator shall not exceed the load capacity rating for the forklift.• The load capacity shall be clearly visible on the forklift.• Forklift operators shall inform their supervisor of any prescribed medication that they are taking that would impair their judgement.
	Cross-contamination and contact with potentially contaminated materials	<ul style="list-style-type: none">• Stop immediately at any sign of obstruction.• Sampling technicians will wear proper protective clothing and equipment to safeguard against potential contamination.• Only essential personnel will be in the work area.• Real-time air monitoring will take place before and during sampling activities.• All personnel will follow good hygiene practices.• Proper decontamination procedures will be followed.• All liquids and materials used for decontamination will be contained and disposed of in accordance with federal, state, and local regulations.
	Cut hazards	<ul style="list-style-type: none">• Use care when handling glassware.• Wear adequate hand protection.



LEGEND:

- ROUTE TO NORTHEAST ALABAMA REGIONAL MEDICAL CENTER
- U.S. HIGHWAY
- HOSPITALS
- INVESTIGATION SITE

DRIVING DIRECTIONS FROM PELHAM RANGE GATE 3 TO THE NORTHEAST ALABAMA MEDICAL CENTER

- EXIT PELHAM RANGE AT GATE NO. 3 AND TURN RIGHT ON U.S. HWY 431
- CONTINUE TO WHERE AL HWY 21 MERGES WITH U.S. HWY 431 AND CONTINUE SOUTH
- CONTINUE SOUTH ON AL21/US431 FOR ~ 2.7 MILES
- TURN LEFT ONTO EAST 10th STREET
- GO ~ 0.2 MILE TO MEDICAL CENTER ON RIGHT
- NORTHEAST ALABAMA REGIONAL MEDICAL CENTER, 400 EAST 10 TH STREET
- PHONE NUMBER : (256) 235-5121

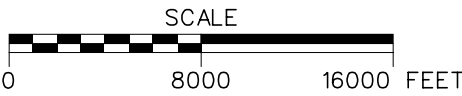


FIGURE 5-1
HOSPITAL EMERGENCY ROUTE

U. S. ARMY CORPS OF ENGINEERS
MOBILE DISTRICT
FORT McCLELLAN
CALHOUN COUNTY, ALABAMA
Contract No. DACA21-96-D-0018



ATTACHMENT 1

**PELHAM RANGE EMERGENCY ROUTE AND
RANGE CONTROL CONTACT**

Pelham Range Emergency Routes

- Range Control will determine, depending on the wind direction, the best egress route.
- Range Control will advise over the radio which route to take.
- Four routes have been indicated on the enclosed map.

Medical Emergency

- Exit gate Number 3 at Pelham Range
- Turn right onto Route 431
- Turn right onto Highway 21 (Quintard)
- Turn left onto 10th Street
- Hospital is 1-1/2 blocks ahead:

Northeast Alabama Regional Medical Center
400 East 10th Street
Anniston, Alabama.

Range Control- Pelham Range

- Building 1120, Ft McClellan
Phone No. 848-6772
Fax No. 848-4412.

All access permits are issued by range control, daily.

FORT MCCLELLAN ALERT AND NOTIFICATION SYSTEM

An outdoor electronic alert and notification system is operational on Fort McClellan and Pelham Range. The purpose of this system is to provide warning(s) of an emergency situation that poses a threat to the safety and health of personnel on Fort McClellan and Pelham Range. The system has the capability of providing digital voice, electronic tone alerts and live voice loudspeaker warnings of emergency situations. The following is a list of the digital voice and associate tone alerts for the various hazards that could threaten personnel on both portions of the installation:

1. **THIS IS A TEST!** This is a test of the Fort McClellan emergency warning system. **THIS IS A TEST AND ONLY A TEST!** **WAIL TONE**

This message is used for the monthly test on the first Tuesday at 1600 hrs.

2. **WARNING! TORNADO WARNING!** A tornado warning has been issued for this area. Seek shelter immediately. Tune to a local radio station. Seek shelter immediately. **TORNADO WARNING!** **SOLID TONE**

3. **WARNING! SEVERE WEATHER WARNING!** A severe weather warning has been issued for this area. Standby for further instructions. Tune to a local radio station. **SEVERE WEATHER WARNING!** **SOLID TONE**

4. **WARNING! THUNDERSTORM WARNING!** A thunderstorm warning has been issued for this area. Standby for further instructions. Tune to a local radio station. **THUNDERSTORM WARNING!** **SOLID TONE**

5. **WARNING! HAZARDOUS MATERIALS ACCIDENT!** There has been a hazardous materials accident. Standby for further instructions. Tune to a local radio station. **HAZARDOUS MATERIALS ACCIDENT!** **HI-LO TONE**

6. **WARNING! Anniston Army Depot has announced a chemical agent release. Standby for further instructions. Tune to FM 100 radio station. CHEMICAL AGENT RELEASE!** **WHOO TONE**

7. **ALL CLEAR!** The emergency situation is over. **ALL CLEAR!** The emergency situation is over. **ALL CLEAR!** **NO TONE**

8. **CHEMICAL ALERT!** Initiate evacuation procedures immediately. A chemical agent release has occurred at Anniston Army Depot. **EVACUATE IMMEDIATELY! CHEMICAL ALERT!** **WHOO TONE**

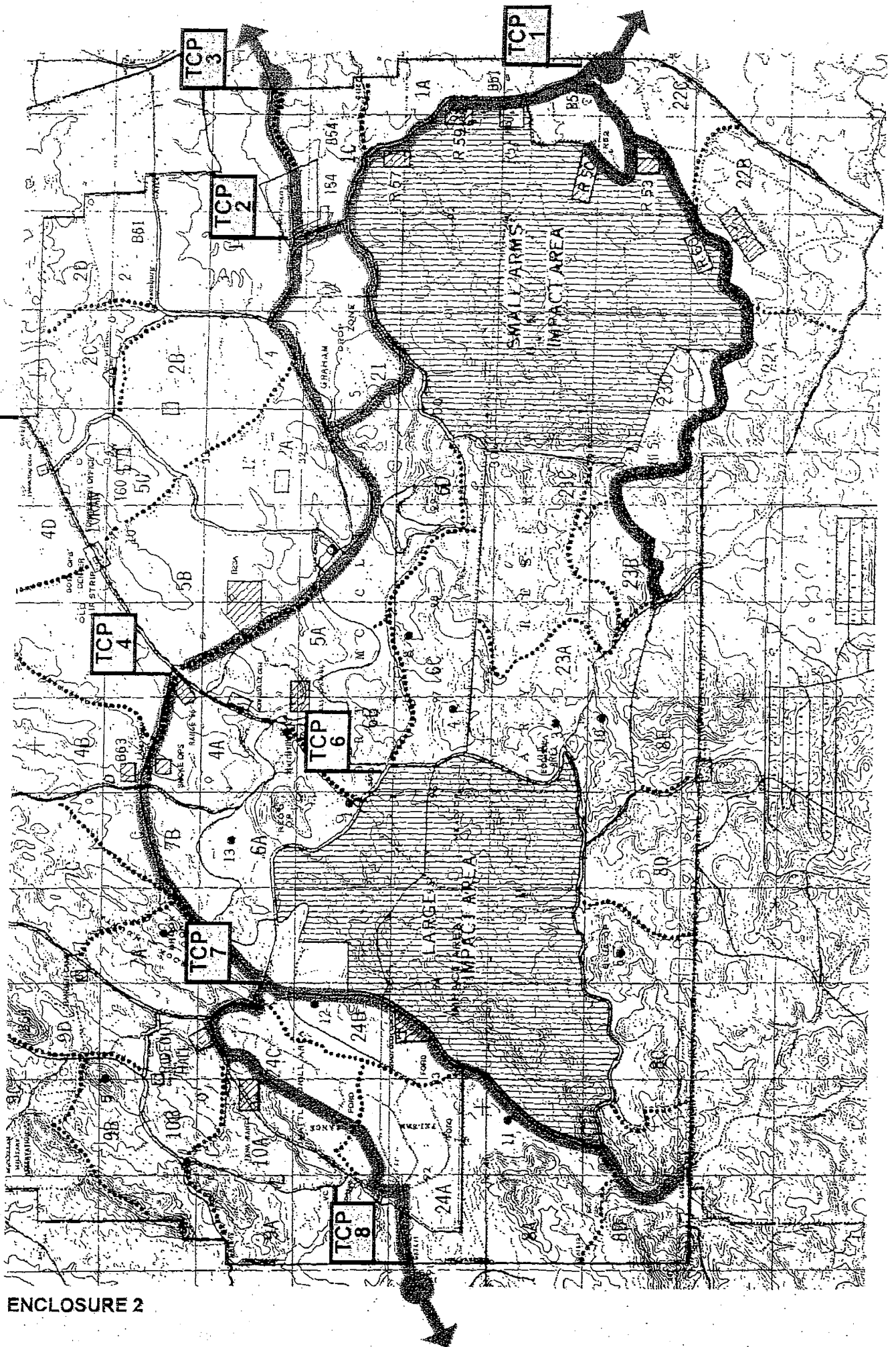
This voice message was specifically designed for Pelham Range.

Sequence of initial alert and notification is:

VOICE MESSAGE--TONE--VOICE MESSAGE--TONE
repeated twice, again as the situation warrants.

Enclosure One

PELHAM RANGE EVACUATION ROUTES



**Final
Site-Specific Unexploded Ordnance Safety Plan Attachment
Site Investigation at Former Personnel and Equipment
Decontamination Station-Pelham Range, Parcel 206(7)
Fort McClellan, Calhoun County, Alabama**

Prepared for:

**U.S. Army Corps of Engineers, Mobile District
109 St. Joseph Street
Mobile, Alabama 36602**

Prepared by:

**IT Corporation
312 Directors Drive
Knoxville, Tennessee 37923**

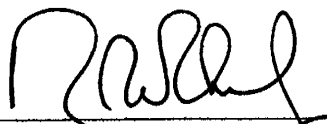
**Task Order CK05
Contract No. DACA21-96-D-0018
IT Project No. 796887**

June 2001

Revision 1

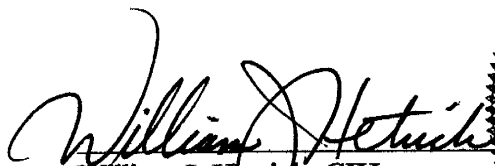
Final
Site-Specific Unexploded Ordnance Safety Plan Attachment
Former Personnel and Equipment Decontamination Station-
Pelham Range, Parcel 206(7)
Fort McClellan
Calhoun County, Alabama

I have read and approve this site-specific unexploded ordnance (UXO) safety plan attachment for the Former Personnel and Equipment Decontamination Station- Pelham Range, Parcel 206(7) Fort McClellan, Calhoun County, Alabama, with respect to project hazards, regulatory requirements, and IT Corporation UXO procedures.

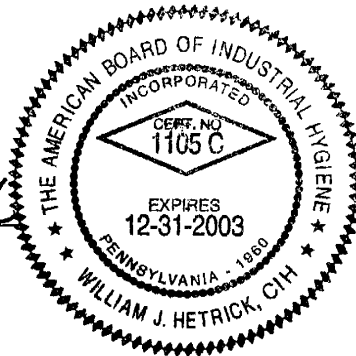


Robert W. Hickman, Jr.
UXO Technical Manager

15 Jun 01
Date



William J. Hetrick, CIH
Health & Safety Manager



6/18/01
Date

Table of Contents

	<i>Page</i>
List of Acronyms	ii
1.0 Introduction	1
2.0 UXO Team Composition.....	2
3.0 Responsibilities	2
4.0 Authority	3
5.0 UXO Avoidance Procedures to Support HTRW Sampling Activities at FTMC	3
6.0 Safety	7
7.0 Quality	8
8.0 References	8
Attachment 1 - Fort McClellan Unexploded Ordnance Supplementary Procedures	

List of Acronyms

See Attachment 1, List of Abbreviations and Acronyms, of the Site-Specific Field Sampling Plan Attachment contained in this binder.

1.0 Introduction

This document defines anomaly avoidance procedures for activities to be performed by IT Corporation (IT) unexploded ordnance (UXO) personnel in conjunction with the site investigation at the Former Personnel and Equipment Decontamination Station-Pelham Range, Parcel 206(7), Fort McClellan (FTMC), Calhoun County, Alabama. This document is not a stand-alone document; it must be used in conjunction with the *Fort McClellan Unexploded Ordnance Supplementary Procedures* (IT, 2001), attached as Attachment 1.

IT UXO personnel will perform visual surveys, assisted by hand-held magnetometers and metal detectors, to support the collection of surface soil, subsurface soil, sediment, and surface water samples at Former Personnel and Equipment Decontamination Station-Pelham Range, Parcel 206(7). Additionally, sediment samples from the bottom of the pond located at Parcel 206(7) will be collected. Special precautions and procedures are defined in this document outlining the procedures to be used for the collection of underwater sediment samples. The purpose of these surveys is to avoid any ordnance and explosives (OE) during hazardous, toxic and radioactive waste (HTRW) sampling activities. Intrusive anomaly investigation is not authorized for this site work.

The Former Personnel and Equipment Decontamination Station, Parcel 206(7), is located on the east side of the road that extends south from Gate 6 in Training Area 4B, at north central Pelham Range (Figure 1-1). The decontamination station was reportedly used during the 1950s and 1960s as a decontamination area for outer garments and equipment potentially contaminated by mustard (H), distilled mustard (HD), and lewisite (L). The equipment and outer garments were decontaminated using subtropical bleach (STB), decontamination agent (noncorrosive) (DANC), and/or decontamination solution number 2 (DS2) (Environmental Science and Engineering, Inc. [ESE], 1998).

An individual interviewed during the environmental baseline survey (EBS) reported that the Former Personnel and Equipment Decontamination Station, Parcel 206(7), was a secondary decontamination station stating that soap and water only were used. The individual also reported that outer garments and equipment were decontaminated at an area near Rideout Hall prior to moving personnel and equipment to the Former Personnel and Equipment Decontamination Station, Parcel 206(7). There are not any interview notes that provide information to indicate the use of STB, DANC, and/or DS2 at this site. During the interview, the only agent referred to in

conjunction with this site was lewisite (U.S. Army Center for Health Promotion and Preventative Medicine [CHPPM], 1996).

The parcel is approximately three acres in size and allows unrestricted access. A small, unnamed pond is located in the northern half of the Former Personnel and Equipment Decontamination, Parcel 206(7). The pond is approximately 160 feet wide from east to west and 190 feet long from north to south, approximately 1/2 acre total. The depth is approximately 5 feet.

Weathered-erosion features allow surface water to drain into the pond at its southeastern most point and discharge out of the pond at its northernmost point. The parcel boundary was extended to the north to include the pond area because of the potential for the disposal of unauthorized materials into the pond. Also, the training in the use of floating smoke pots and disposal of some unburned smoke pots reportedly occurred at this location and supports the extension of the parcel boundary to include the pond (CHPPM,1999). Because of the previously mentioned potential that unauthorized disposal of materials into the pond has occurred, the pond was included in the parcel during the EBS (ESE, 1998).

2.0 UXO Team Composition

UXO team and personnel requirements will be in accordance with EP 75-1-2 (USACE, 2000) and installation-wide sampling and analysis plan (SAP) (IT, 2000) for FTMC. A UXO team will be on site during all sampling or intrusive activities where OE is suspected.

3.0 Responsibilities

The UXO Team Leader is responsible for ensuring that personnel performing UXO tasks at FTMC have the required qualifications. The UXO Team Leader supervises and coordinates UXO work activities.

The UXO team member(s) will provide UXO avoidance, explosive ordnance recognition, location, and safety functions for IT employees and any subcontractors during sampling activities. Sampling activities at this site include surface and subsurface soil sampling, surface water sampling, and sediment sampling from the bottom of the pond, and safe access and egress to and from the site in support of HTRW operations.

4.0 Authority

UXO personnel are authorized to perform UXO avoidance activities only. UXO personnel are not permitted to initiate OE investigative or disposal activities.

5.0 UXO Avoidance Procedures to Support HTRW Sampling Activities at FTMC

The scope of work for site investigation activities with the Former Personnel and Equipment Decontamination Station, Parcel 206(7), include the following UXO tasks:

- Provide UXO avoidance support during the collection of three surface soil samples, three subsurface soil samples, three surface water samples, and three sediment samples from the bottom of the pond. Sample locations are defined in Section 4.0 of the site-specific field sampling plan contained in this binder.
- Provide downhole UXO support for all intrusive drilling to determine buried downhole hazards.
- Provide surveys for all intrusive field activities (e.g., digging, fence post driving, grading, or excavation).
- Collection of sediment samples from the bottom of the pond area.

Since these areas may contain OE contamination, the UXO team must conduct a surface access survey for UXO before any type of activities commence. This includes foot and vehicular traffic. UXO avoidance activities at the Former Personnel and Equipment Decontamination Station, Parcel 206(7) include:

- a) Access Corridors and Sampling Sites
 - (1) The UXO team will conduct access surveys of the footpaths and vehicular lanes approaching and leaving each of the investigation sites. Access surveys will begin in a known clear area and proceed by the most direct route to the sampling site. The boundaries of the access route and sampling site will be marked with white tape or white pin flags.
 - (2) If an OE item is found during the survey, the location will be conspicuously marked with a red pin flag and avoided by altering the

route. Additionally, UXO personnel will complete the IT FTMC “Unexploded Ordnance Report Form.” Subsurface anomalies will be marked with a yellow flag.

- (3) The boundaries of the access route and sampling site will be recorded in the IT FTMC “UXO Sketch Log” by the UXO technician. Additionally, anomaly locations will be recorded on this form.
- (4) Instrumentation used at this site will include the Schonstedt GA 72, the CST Corporation Magna-Trak 102, or the Whites Spectrum XLT Metal Detector. Additionally, the Schonstedt MG-220 or MG-230 will be set up for downhole monitoring. All equipment will be operated as specified in the appropriate operator’s manual. All equipment will be function tested prior to use following the procedure in paragraph 3.2, *FTMC UXO Supplementary Procedures* (IT, 2001) and the operator’s instructions. The Whites Metal Detector will be used in conjunction with hand-held magnetometers in areas of high concentrations of rocks with a magnetic signature to assist in eliminating anomalies created by “hot rocks.”
- (5) The access route will be twice as wide as the widest vehicle that will use the route. Footpath lanes will be a minimum of three feet wide.
- (6) If surface OE or subsurface anomalies are encountered that cannot be avoided, the access route must be diverted to avoid contact. No personnel will be allowed outside of the surveyed areas without a UXO escort. No unescorted access is permitted inside the corridor area until a survey has been completed and boundaries established.
- (7) At the actual investigation site, the UXO team must also complete a survey of an area sufficient to support mechanical excavation equipment maneuverability, parking of support vehicles, and establishment of decontamination stations. As a minimum, the surveyed area should have a dimension in all directions equal to twice the length of the largest vehicle or piece of equipment to be brought on site. White pin flags or tape will be used to mark the boundaries of the surveyed site.
- (8) Surface soil samples are normally collected at depths of 0 to 12 inches below ground surface. The UXO team will survey the area of the soil sampling site for any indication of OE. Sampling is not permitted at any location where an anomaly has been detected.
- (9) Tracked or other vehicles whose movement would disturb the soil are authorized for use only in areas that have been surveyed and in which no anomalies have been detected.

- (10) If grading or soil movement is required to support access corridor development or a sampling location, UXO personnel will perform a survey. After an area has been surveyed and no anomalies have been detected, soil can be removed at a rate of no more than one foot per cut. If additional grading is required, another survey will be performed after each one foot of soil has been removed.
- (11) Erosion and weathering will typically cause some OE items to leach to the surface or otherwise be uncovered. In cases where access corridors or sampling sites have not been surveyed or traversed for a period of time, additional surveys may be required. The decision regarding the performance of follow-on surveys will be made by the site superintendent with input provided by the FTMC UXO Safety Officer and FTMC UXO Team Leader. The decision will be based on such factors as: the amount of time since the last survey was performed, the weather during this period, the terrain in the area of concern, the former use of the area, and the type of quantity of OE found during initial surveys.
- (12) Incremental geophysical surveys at drill hole locations will be initially accomplished using a hand auger to install a pilot hole. An access survey of the immediate vicinity of the pilot hole location will precede the installation of the pilot hole. The UXO team will use a manual or mechanical portable auger to install the pilot hole. The augured hole will be inspected for anomalies with a geophysical instrument (configured for downhole utilization) in two-foot increments as the hole is advanced below ground surface. Hand augering of a hole will not proceed if an anomaly is detected that cannot be positively identified as inert material. If a suspect OE item is encountered, the sampling personnel must select a new drill hole location. The pilot hole will also be inspected with the geophysical instrument upon reaching the final depth of the hand augered hole providing a total clearance depth equal to pilot hole depth plus two feet. If the proposed site is still free of magnetic anomalies, the drilling equipment may be brought on site and utilized. The UXO team will continue to inspect the drill hole for anomalies at two-foot increments as the drilling is advanced from the clearance depth of the pilot hole until a depth of 12 feet is reached.

b) Vegetation Removal

In cases where large trees or other vegetation removal is required to support access or sampling operations, the procedures in paragraph 4.2, *FTMC UXO Supplementary Procedures* (IT, 2001) will be followed.

c) Sediment Sampling

Sediment sampled collected from areas of the pond too deep to safely wade will be collected from a boat. Because of the limitation to the number of personnel that can safely be present in the sampling boat, UXO personnel will take the sediment samples.

UXO personnel will utilize a 14-foot type John-boat. A surface clearance will be performed to allow the boat to be brought to the edge of the pond and launched. As a minimum, the following equipment will be present in the boat: three paddles, two life vests, a life ring with sufficient line to reach across the pond, a length of PVC pipe of approximately seven feet, a downhole magnetometer, a hand auger with extensions, and appropriate sampling equipment. (As a minimum, the pipe should be long enough to extend approximately 6 inches above the side of the boat and must be of sufficient inside diameter to allow for the insertion of the downhole magnetometer probe and the hand auger.)

Additionally, a minimum of two personnel will be present at the shoreline equipped with a life ring, life vests and emergency communications equipment.

All personnel involved in collecting sediment samples will be able to swim. Additionally, all personnel will wear life vests at all times. Extreme caution must be exercised, as a boat is an unstable platform.

The UXO team leader will ensure that all equipment is present and operational before the boat is launched.

Once the boat is in position at the sampling location, the PVC pipe will be pushed downward until it comes in contact with the bottom of the pond. The probe of the downhole magnetometer will then be dropped down the pipe until it reaches the bottom of the pond. If an anomaly is detected, the magnetometer and pipe will be removed and the location adjusted until no anomaly is detected. If no anomalies are detected, the probe will be withdrawn and sediment sampling may begin. Because of the quantity of material required for sampling, several samples of sediment may have to be retrieved at each sampling location.

To retrieve a sediment sample, the hand auger will be inserted down the pipe until it comes in contact with the bottom of the pond. Because the boat will attempt to turn as the auger is twisted, the auger will be turned utilizing quick, sharp movements to obtain the sample. If the bottom surface does not allow for easy removal of the sample and there is excessive movement in the boat, the UXO team leader may decide to tether the boat with a line running in opposite directions to anchor points on shore.

Once a sufficient quantity of sample material has been recovered, the pipe will be removed. The sample will be packaged in accordance with sampling procedures listed in the site-specific sampling plan contained in this binder. At this time the boat will be moved to the next sampling location and the sampling process repeated.

After all samples have been collected, the boat will be beached; equipment will be recovered, cleaned and secured.

d) Magnetometer/Metal Detector Checkout and Field Procedures

The procedures in paragraph 3.0, *FTMC UXO Supplementary Procedures* (IT, 2001) will be followed.

e) UXO Logbooks and Documentation

All UXO personnel identified in paragraph 5.0, *FTMC UXO Supplementary Procedures* (IT, 2001) will maintain a logbook in accordance with that procedure.

6.0 Safety

In addition to the requirements of the site-specific safety and health plan prepared for this site, the UXO personnel will ensure the following:

- a) During the access and subsurface surveys conducted with a geophysical instrument, the UXO team members will not wear safety shoes or other footwear that would cause the instrument to present a false response.
- b) The UXO team will not be required to wear protective helmets unless an overhead hazard is present.
- c) The FTMC UXO Safety Officer will monitor UXO activities to ensure compliance with applicable safety requirements.
- d) The FTMC UXO Safety Officer will certify that all FTMC UXO workers are capable of performing UXO activities at FTMC based on observation of work performance.
- e) The FTMC UXO Safety Officer is responsible for all site-specific UXO training.

- f) The UXO technician on site will advise project personnel regarding all evacuation and/or exclusion zones as appropriate. The UXO technician will monitor all sampling site activities to ensure that only the minimum number of personnel is present on site.
- g) All personnel involved in collecting subsurface water samples in and around the pond area will be able to swim. Personnel taking part in sediment sampling in the pond will wear life vests at all times.

7.0 Quality

The IT FTMC UXO Quality Control Officer will follow quality control instructions and procedures listed in Section 9.0 of the installation-wide OE management plan contained in Volume IV of the SAP (IT, 2000) appropriate to this task and the FTMC UXO Supplementary Procedures. The IT FTMC UXO Quality Control Officer will also utilize the “UXO Avoidance Quality Control Report” to document his activities. Copies of this form will be provided to the IT quality assurance representative upon request.

8.0 References

Environmental Science and Engineering, Inc. (ESE), 1998, ***Final Environmental Baseline Survey, Fort McClellan, Alabama***, prepared for U.S. Army Environmental Center, Aberdeen Proving Ground, Maryland, January.

IT Corporation (IT), 2001, ***Fort McClellan Unexploded Ordnance Supplementary Procedures***, June.

IT Corporation (IT), 2000, ***Final Installation-Wide Sampling and Analysis Plan, Fort McClellan, Calhoun County, Alabama***, March.

U. S. Army Corps of Engineers (USACE), 2000, ***Engineering Publication, EP 75-1-2, Unexploded Ordnance (UXO) Support During Hazardous, Toxic, and Radiological (HTRW) and Construction Activities***, 20 November.

U.S. Army Corps of Engineers (USACE), 1999, ***Archives Search Report, Maps, Fort McClellan, Anniston, Alabama***, July.

ATTACHMENT 1

**FORT MCCLELLAN UNEXPLODED ORDNANCE SUPPLEMENTARY
PROCEDURES**

FTMC UXO SUPPLEMENTARY PROCEDURES

Subject: Ordnance and Explosives

1.0 INTRODUCTION

IT Corporation (IT) has been retained by the U.S. Army Corps of Engineers-Mobile District, under Contract Number DACA21-96-D-0018, to provide environmental services related to Base realignment and closure (BRAC) of Fort McClellan, Alabama. The Installation-Wide Ordnance and Explosives (OE) Management Plan for Fort McClellan (FTMC) was prepared by IT Corporation and submitted as a final document in March 2000. The Installation-Wide OE Management Plan was prepared to provide general guidance for conducting unexploded ordnance (UXO) work associated with hazardous, toxic, and radiological waste (HTRW) investigations and remedial activities currently in progress at FTMC. IT Corporation prepares site-specific field sampling, health and safety, and UXO safety plans for sites where fieldwork will occur that may potentially contain OE. A UXO Safety Plan is not prepared for sites that are not reported to be in areas containing OE.

1.1 Purpose

This document is intended to provide procedures to the field staff that outline UXO operations and clarify activities currently permitted under "anomaly avoidance." The document is not intended to replace any of the project documents currently approved; rather, it is intended to complement those documents with additional information that allows successful completion of the job.

2.0 FTMC EMPLOYEE ORIENTATION/TRAINING AND CERTIFICATION

The IT FTMC orientation program is designed to:

- Indoctrinate new employees to FTMC-unique procedures
- Verify compliance with regulatory certification requirements
- Provide continuing instruction and updating in UXO fundamentals to sustain readiness to safely perform UXO tasks

2.1 Responsibilities

The IT OE Service Center Operations Manager will oversee the training programs and maintain a master record of UXO employee training and certification status.

The UXO person designated as the senior IT UXO individual at FTMC will schedule the orientation listed below.

The FTMC UXO Safety Officer will:

- Conduct all UXO-specific orientation and training at FTMC
- Certify that each new UXO employee is capable of performing UXO work activities at FTMC
- Maintain FTMC training files and records on each UXO technician on site reflecting his or her current training status.

2.2 UXO Employee Orientation

Every UXO employee assigned to FTMC will receive a site-specific UXO orientation in addition to training required by the Occupational Health and Safety Administration (OSHA). This orientation will include, as a minimum, the following topics:

- Local emergency response drills and procedures
- Personal protective equipment (PPE) and personnel decontamination procedures
- Ordnance recognition/UXO expected to be encountered at FTMC
- Equipment safety
- FTMC site orientation
- Chemical warfare material (CWM) awareness and procedures
- Communications procedures
- FTMC Logbook/data recording procedures
- IT administrative policies and procedures
- Magnetometer checkout procedures.

Upon completion of the UXO employee orientation, the FTMC UXO Safety Officer will monitor the performance of the new hire for at least three workdays while conducting typical UXO activities. The FTMC UXO Safety Officer will

then certify that the individual is capable of performing UXO activities at FTMC based upon satisfactory performance of the three-day period. A copy of this certification will be maintained in the individual's site FTMC training file (see example at Attachment 1).

2.3 UXO Sustainment Training

All UXO technicians have had the OSHA 40-hour hazardous waste operations and emergency response (HAZWOPER) course in order to be initially certified at FTMC. They are also required to maintain the certification with an 8-hour OSHA refresher course on an annual basis. Additionally, all IT FTMC UXO personnel will have 8 hours of site-specific annual UXO sustainment training. This training can be performed incrementally (2 hours every quarter) at the discretion of the site superintendent in coordination with the FTMC IT UXO Safety Officer. Topics will include, but are not limited to, the following subjects:

- Site-specific environmental hazards
- Site-specific UXO hazards, ordnance fuzing, functioning and precautions
- Topics which the IT UXO Team Leader or IT Safety UXO Officer determines necessary to support FTMC UXO activities

Sustainment training will be conducted for a period of no less than 8 hours. Daily safety briefings, tailgate safety meetings, and other required site-specific training are not a substitute for this training. The purpose of this training is to provide each UXO employee with site-specific UXO training over and above OSHA requirements. The site-specific UXO training will be recorded in the project file and the UXO employee's personnel file.

3.0 FTMC MAGNETOMETER/METAL DETECTOR FUNCTION TEST AND FIELD PROCEDURES

This section provides FTMC magnetometer/metal detector function tests and operating procedures to be employed at all work sites that have been identified as requiring avoidance support.

3.1 Geophysical Test Plot

The purpose of a test plot is to provide a consistent environment where the equipment can be evaluated. The location of the geophysical test plot will be inside the IT compound. It will be established as follows

- The test plot will consist of an area approximately 20 x 20 feet and clear of vegetation and magnetic anomalies, located in the IT compound next to the southeast end of the office trailers.
- Five metal test objects will be buried at depths varying from 6 inches to 24 inches. The objects will approximate the weight, diameter, and length of an MK 2 grenade, a 60mm mortar, a 2.36-inch rocket warhead, a 75mm projectile, and a 37mm projectile. Additionally, three non-ferrous test objects will be buried at a depth of 2 inches to 8 inches. A 6-inch length of 1/2-inch reinforcing rod will be placed on the surface for use as a surface check source. Items with greater mass will be buried at greater depths. Each burial location will be marked with a wooden stake located about 6 inches to the north of the object. Each stake will be assigned a reference number and will be tagged or marked to denote the depth, type of item and orientation of the item. The site will utilize native soils; no fill material will be brought in from another area. Sand will be used to cover the area to mitigate the effects of wet weather.
- For downhole magnetometer testing, a length of 2-inch PVC pipe will be buried to a depth of 36 inches. The pipe should be of sufficient length to allow at least another 24 inches to extend above the surface of the ground. A metal object will be buried at a depth of 24 inches and 24 inches from the side of the pipe. The location of the item, similar in size and mass to a 75mm projectile, will be marked with a wooden stake tagged to denote the depth, type of item, orientation, and reference number assigned.

3.2 Magnetometer/Metal Detector Check-Out Procedures

- Prior to field use, all magnetometers and metal detectors will be set up following the guidelines in the manufacturer's operating manual for the specific instrument used. Instrumentation used at this site will include the Schonstedt GA 72, the CST Corporation Magna-Trak 102, or White's Spectrum XLT Metal Detector. Additionally, the Schonstedt MG-220 or

MG-230 will be set up for downhole monitoring. All equipment will be operated in a manner consistent with instructions contained in the appropriate operator's manual. All equipment will be function-tested prior to use. The White's Metal Detector will be used in conjunction with hand-held magnetometers in areas of high concentrations of rocks with a magnetic signature, to assist in eliminating anomalies created by "hot rocks." The operating manual for each of the instruments used at FTMC will be available for use with the equipment.

- Once the instrument has been determined to be working according to the manufacturer's operating manual, the operator will perform a function test on the FTMC geophysical test plot using the detection methods described in the manual. A function test will consist of using the instrument over a minimum of three test sources. The same sources will be used during each function test to ensure consistency. The instrument detection indicator, as described in the operator's manual, will be noted in the instrument logbook. For site checks, a 6-inch length of 1/2-inch steel reinforcing rod will be available to each operator at the work site.
- Instruments that fail to reproduce a detection indication consistent with previous tests will be checked to ensure that the power supply or batteries are sufficient. If the power supply is determined to be sufficient and the operator cannot find a fault in accordance with the operator's manual, the instrument will be tagged and removed from service.
- Function tests will be performed each morning before the equipment is put into service.
- If an instrument is determined to be working improperly, the FTMC UXO Team Leader and the site superintendent will be immediately notified. Any activities performed using that instrument since its last positive test procedure will be considered invalid and will require reevaluation.
- Upon completion of the function test, the "Magnetometer/Metal Detector Functions Test Data Sheet" (Attachment 2) and the equipment logbook will be filled out.

- After an instrument has been function-tested at the beginning of each day, the instrument will be checked at least once during every hour of use or each time the instrument is turned on after having been turned off. This check will consist of dropping the 6-inch length of 1/2-inch reinforcing rod in a clear area and passing the detector over the rod in a manner consistent with the operator's instructions. The instrument indication will be compared to the indication produced during the morning function test. Instruments that fail to produce a consistent indication will be checked and removed from service as required.

3.3 Equipment Documentation

Each piece of equipment will be assigned a logbook noting the make, model, manufacturer, and serial number of the equipment. The logbook and manufacturer's operating manual will be present when the equipment is tested. The following information will be recorded:

- Date and time
- The test plot object used (assigned stake number)
- The reading or indication at each test site
- Whether or not the reading or indication was satisfactory
- The name of the individual performing the test.

The IT FTMC Quality Control (QC) Officer will observe the daily testing of all equipment and will record the results of each test in his field logbook.

3.4 Magnetometer/Metal Detector Field Procedures

All intrusive field activities in potential OE areas (e.g., digging, fence post driving, grading, well installation or excavation) will be preceded by a UXO sweep. Each hole made in areas where OE may potentially be found will have a check immediately over the spot of the intrusion. Magnetometer operations at FTMC will assume a detection depth of one foot when surveying an area for excavation.

All magnetometers and metal detectors will be operated in accordance with the manufacturers specifications and procedures.

When surveying a potential area for a sampling well, an area of sufficient size will be surveyed to allow for installation of required pads and bollards. After the well

is installed, the location of bollards will be adjusted as required if an anomaly is detected during the bollard installation process.

The White's Metal Detector will be used to augment the magnetometers on sites where "hot rocks" are suspected. The purpose of using the metal detector in addition to the magnetometers is to eliminate the probability of "hot rocks."

4.0 FTMC ACCESS CLEARANCES, VEGETATION REMOVAL, AND ROAD MAINTENANCE

This section is designed to provide specific procedures regarding activities associated with the building of access corridors, vegetation removal, and road maintenance in support of FTMC operations.

4.1 Access Corridors

The purpose of access corridors is to enable IT personnel access to well and/or other types of sampling sites within FTMC. Access corridors will be created by marking the route, both length and width, in which a UXO survey has been performed. The marking method will be defined in each site-specific UXO safety plan. No unescorted access is permitted until a corridor has been established. If an anomaly is detected during the survey or during a subsequent excavation, it must be avoided, since investigation is not authorized. The route will be altered to avoid the anomaly for FTMC activities. A magnetometer is considered to reliably detect anomalies to a depth of one foot.

The size of each area to be surveyed is dependent on the type and quantity of equipment expected to be used on that site. The UXO survey crew will follow the procedures outlined in the site-specific UXO safety plan to determine the dimensions of the area to be surveyed. Normally, the width of the access route will be at least twice as wide as the widest vehicle that will use the route; footpaths will be a minimum of 3 feet wide.

Tracked or other vehicles, that disturb the soil are authorized for use only in areas that have been surveyed and no anomalies have been detected.

Erosion and weathering will typically cause some UXO items to leach to the surface or otherwise be uncovered. In cases where access corridors or sampling sites have not been surveyed or traversed for a period of time, additional UXO surveys may be required. The decision regarding the performance of additional

surveys will be made by the FTMC UXO team leader and the IT FTMC UXO Safety Officer. The site superintendent will be notified of this decision. This decision will be based on, but not limited to, such factors as: the amount of time since the last survey was performed; the weather during this period; the terrain in the area of concern; and the type and quantity of UXO found during initial surveys.

4.2 Vegetation Removal

In cases where removal of large trees or other types of vegetation is required, the following procedures will be followed:

- The UXO technician will survey around the base of the tree or vegetation, and, if no anomaly is detected, direct the bulldozer or other equipment to proceed. If an anomaly is detected, the location will be recorded and marked and another route will be selected. The size of the area to be surveyed will depend on the size of the suspected root system of the tree to be removed.
- Once the tree has been pushed over, the UXO technician will survey around the root ball and the area in and around the hole. If an anomaly is detected, the anomaly will be recorded and marked and an alternate route will be selected. If no anomaly is detected, the UXO technician will direct the equipment operator to proceed with the excavation.

4.3 Road Maintenance

Remote range roads and trails frequently require a certain amount of repair to remain passable. This section describes authorized actions regarding the maintenance of dirt or gravel range roads by IT UXO personnel.

- Bulldozers or grader-type equipment is authorized to repair roads and trails as long as a UXO survey has been performed and no anomalies have been detected.
- The UXO technician will observe the blade of the equipment as the earth is moved. If a potential UXO is uncovered, the UXO technician will signal the equipment operator to immediately stop the equipment. The UXO technician will then attempt to visually identify the object. If the object cannot be positively identified as a non-hazardous item, the

equipment will be moved, the location of the object marked and recorded on the IT FTMC Unexploded Ordnance Report Form (Attachment 3), and the route changed to avoid the object. If no suspicious objects are detected, the equipment will continue to move earth at a rate of no more than one foot of depth at a time. If, more grading is required after the first pass is complete the UXO technician will perform another survey. If no anomalies are detected, the equipment can repeat the grading process. If an anomaly is detected, the operation will be halted and the route changed.

- After an area has been surveyed and no anomalies have been detected, soil can be removed at a rate of no more than one foot per lift. If additional grading is required, a survey will be performed after each one-foot increment the soil has been removed.
- Earth may not, at any time, be moved at a rate of more than one foot in each lift.

5.0 FTMC UXO LOG BOOKS

All UXO team leaders or UXO technicians supporting HTRW operations will maintain a logbook. The purpose of the logbook is to record UXO actions and activities taken at each work site.

5.1 Responsibilities

UXO personnel will maintain an individual daily logbook of work activities.

The logbooks will be routinely inspected weekly by the UXO QC Officer and will be made available to the FTMC site superintendent upon request. Copies will be made daily and filed in the IT Field Project office.

Logbooks will contain bound and numbered pages. Entries will be on successive pages as work is performed. The individual using the logbook will sign the page after the last entry for that page has been made. Logbooks are part of the project legal file and will be filed with the project files upon completion of each investigation.

5.2 Data Requirements

As a minimum, individual logbooks will contain the following information:

- Date, time and location of UXO activities
- Personnel involved in the activities
- UXO activities performed, including UXO/anomalies found
- A description of areas swept
- A record of the magnetometer or other equipment used, including instrument serial number
- Weather conditions.

The IT FTMC QC Officer will utilize the IT FTMC “UXO Avoidance Quality Control Report” (Attachment 4) to document checks of field activities.

Additionally, UXO personnel will complete IT FTMC Form “UXO Sketch Log” (Attachment 5) and IT FTMC Unexploded Ordnance Report Form. The “UXO Sketch Log” will contain a description of activities, including the dimensions of the area surveyed. A description of the length and width will be recorded, as well as the manner in which the survey was performed. These forms will be completed as required and presented to the site superintendent.

ATTACHMENT 1

FTMC Employee Certification (Example)

I certify that (name of individual) has fulfilled all UXO orientation requirements and has been observed by me for a period of 3 work days and is therefore eligible to perform UXO activities at FTMC.

Jim Kerr
FTMC UXO Safety Officer

ATTACHMENT 2

Magnetometer/Metal Detector Functions Test Data Sheet

Each magnetometer and/or metal detector will receive a function test at the beginning of each workday and after changing batteries. The function test will include operating the magnetometer/metal detector over a test area developed specifically for ensuring that detection instruments are operating properly. Instruments that do not pass the function test will be tagged out until repairs are made or a replacement instrument is available.

Project Number: _____

Instrument Model: _____

Instrument Serial Number: _____

Date	Person Performing Test	Function Test Results	Remarks

These standard policies and procedures are applicable to all members of The IT Group, Inc. except where superceded or modified by the member Company.

ATTACHMENT 3

Unexploded Ordnance Report Form

Report Tracking Number: _____															
Discovery and Reporting Time															
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="2">Time of Discovery</th> </tr> <tr> <td style="width: 50%; text-align: center;">Date</td> <td style="width: 50%; text-align: center;">Time</td> </tr> <tr> <td style="height: 20px;"></td> <td></td> </tr> </table>		Time of Discovery		Date	Time			<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="2">Time Reported to Base Transition Force</th> </tr> <tr> <td style="width: 50%; text-align: center;">Date</td> <td style="width: 50%; text-align: center;">Time</td> </tr> <tr> <td style="height: 20px;"></td> <td></td> </tr> </table>		Time Reported to Base Transition Force		Date	Time		
Time of Discovery															
Date	Time														
Time Reported to Base Transition Force															
Date	Time														
Employee Name: _____		Reported to FTMC Transitional Force Personnel Name: _____													
Location of Ordnance															
Location, Description, and Parcel Number: 															
Coordinates of Ordnance:		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="2">State Plane Coordinates</th> </tr> <tr> <td style="width: 50%; text-align: center;">Northing</td> <td style="width: 50%; text-align: center;">Easting</td> </tr> <tr> <td style="height: 20px;"></td> <td></td> </tr> </table>		State Plane Coordinates		Northing	Easting								
State Plane Coordinates															
Northing	Easting														
<table border="1" style="width: 100%; border-collapse: collapse; margin-left: auto;"> <tr> <th colspan="4">Picture Taken of Ordnance</th> </tr> <tr> <td style="width: 25%; text-align: center;">Yes</td> <td style="width: 25%; text-align: center;">No</td> <td style="width: 25%; text-align: center;">Date</td> <td style="width: 25%; text-align: center;">Time</td> </tr> <tr> <td style="height: 20px;"></td> <td></td> <td></td> <td></td> </tr> </table>				Picture Taken of Ordnance				Yes	No	Date	Time				
Picture Taken of Ordnance															
Yes	No	Date	Time												
Written Description and/or Sketch of Ordnance: 															
Corrective Action Taken by Fort McClellan Transition Force															
Date															

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ATTACHMENT 4

UXO Quality Control Report

Project Location: _____

Date: _____

Work Site Location: _____

Day: _____

1. Personnel Involved:

2. Description of Work Being Performed:

3. Equipment Utilized:

4. Comments:

Completed By

Printed Name & Title

Signature

Date

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ATTACHMENT 5

UXO Sketch Location Log

District: _____ Hole Number: _____ Date: _____

Company Name: IT Corporation Subcontractor: _____

Parcel Location: _____ Well Location: _____ Date Started: _____ Date Completed: _____

Type of UXO Work Being Performed:

Most Probable Munition: _____

Down-Hole Depth Achieved for UXO Avoidance: _____

Total Number of Surface UXO Marked: _____

Total Number of Anomalies Marked: _____

Location Sketch/Comments:

Not to Scale

Signature of UXO Technician:

Date:

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